



INDIANA UNIVERSITY

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INDIANA UNIVERSITY

POSTER SESSION I

9:00am – 10:00am

Session I Poster Presenters

9am – 10am

P1 – Devin McDaniel IUPUI

"Rethinking Access to Content: Learning Commons Models as Second-Access"

Learning Commons (LC) designed learning centers that offer students a second-access to mathematical content to augment their educational experiences in the classroom, or *first-access* learning point. The first of their kind centers were created at Indiana University-Purdue University Indianapolis (IUPUI) campus in 2013 and 2015, respectively. These centers, the Mathematics Assistance Center (MAC) and Statistics Assistance Center (MAC Stat), were analyzed to determine their effectiveness on student learning. Visitation data from the 2015-2016 academic year was parsed and cleaned. The labor was streamlined for future research by a team of programmers that developed a web app for simpler acquisition. This research, coupled with another research paradigm produced definitive, quantitative evidence that LC designed centers can support all students regardless of their area of study. Amongst students who visited, DFW rates were in fact lower than their expected proportional amount. When looking at specific minority subgroups broken down by gender, visitors still had lower DFW rates than those who do not visit. This newly developed web app, Compass, is available for other learning centers across the campus which will expand the data collection for further investigation into the usage and impact of learning centers.

P2 – Daniel Collins IUPUI

"Electrochemical Detection of Inorganic Materials Used in Explosives"

To help crime scene investigators, in-field analytical tools are important. We are developing an electrochemical method to detect trace amounts of inorganic explosive precursors adaptable to paper-based devices. The concept relies on using an immobilized layer of molybdate as a sensing layer and the catalytic effects of chlorate and bromate on the redox activity of molybdate. The sensing layer is immobilized on the working electrode of the electrochemical system by electrodeposition: by applying a voltage between the electrodes while submerged in an acidified solution of sodium molybdate. We explored various parameters influencing the electrodeposition of the molybdate such as pH, type of buffer solutions, resting time between deposition steps, or the stability of the molybdate solutions. We also demonstrated that the deposition was indeed induced by an electrochemical reaction and not by simple adsorption of the molybdate on the electrode. In our preliminary proof-of-concept experiments, we were able to detect chlorate in solution. Further experiments include detecting different amounts of chlorate and bromate and transferring the system to electrochemical paper-based devices. These portable, low-cost devices will allow an easy collection of small amounts of sample on surfaces when investigating suspicious crime scenes.

P3 - Kristen Powell IUPUI

"Microfluidic Device for the Encapsulation of Bacteria in Droplets"

People worldwide are subject to suffering from bacterial outbreaks. Current methods of bacterial detection can take a lot of time, in particular because, in most cases, the sample concentration must first be increased by culture in order to reach detectable limits. We are developing a method to easily detect low concentrations of bacteria in a sample so the culture step is not necessary and any relevant actions can be taken sooner. We are making microfluidic chips by assembling polydimethylsiloxane (PDMS) slabs with engraved channels and glass slides that are capable of encapsulating bacteria in droplets. This is done by emulsifying an aqueous phase, containing bacteria, with an immiscible perfluoro phase in the channels of the PDMS. In this experiment, we explored different techniques to fabricate the chips and different parameters were considered to generate usable droplets. We optimized the microfluidic droplet generator using colored aqueous solutions before testing it for the encapsulation of non-pathogenic *E. coli* K12. Having the bacteria contained in a smaller volume like a droplet will create a seemingly higher concentration, making it easier to detect by different analytical techniques including some new methods developed in the group.

P4 – Uladzimir Kasacheuski IUPUI

"Computational Optimization of Hybrid Cellular Automaton Model of Cell Spheroids Metabolism"

Three-dimensional tissue engineering constructs can be created by fusion of cell spheroids serving as building blocks. A concern during this form of biofabrication is the impact of deprivation of oxygen and nutrients, e.g., glucose, which naturally occurs at the spheroids' core. Our research advances the current state of cellular simulation software with the purpose of analysis and optimization of the fusion of spheroids by taking into consideration basic metabolic needs. Current software requires the minimization of computation time and calibration of the model to maximize simulation accuracy. We have drawn on an established cellular model in order to create a hybrid cellular automaton algorithm of the Cellular Potts class, which is capable of modeling the interactions required to capture cell dynamics and metabolism in spheroids. To advance towards our objectives, we need to compare alternative programming options in terms of computation time and the simulation results to available experimental data for calibration. Computational advancements include calculating diffusion fields directly with steady state solutions and asynchronous data post-processing capabilities. These choices reduce the computation time dramatically. Results demonstrate a time reduction of 1:300 on a 50 Monte Carlo step (MCS), 250-microns by 250-microns domain. Ongoing efforts in model calibration focus on mapping each MCS to a discrete time increment. These combined advancements directly impact on the efficiency of computational predictions and allow better calibration of the model. Consequently, improved computational prediction will enable faster iterations, increased structural complexity of fabricated constructs, and thus higher rates of success

P5 – Alvaro Esperanca IUPUI

"Development of a Low Cost Non-Optical Motion Capture System for Rapid Clinical Assessment of Pathological Gait"

Clinically, optical motion capture systems can be used to diagnose pathological gait. Unfortunately, such systems are not used in practice to quantify the efficacy of therapy as part of the standard of care not only because of the necessity for an expensive specialized motion capture system and dedicated space, but also because of the setup time needed to perform the diagnosis. These limitations led to the proposed alternative which is based on readily available, mainstream devices. Nowadays, most smartphones have accelerometers and gyroscopes that register translational and rotational data. The proposed non-optical system leverages these sensors on android devices in order to collect translational and rotational data. This data is then used to derive the position and rotation of the test subject in 3D space. An android application has been developed for this purpose and is installed on three devices which are then attached to the upper or lower limbs of a test subject. The data is collected and sent wirelessly to a base station where it is used for analysis and diagnosis.

Session I Poster Presenters

9am – 10am

P6 – Doryan Miller IU Bloomington

“Examining Globular Clusters in the Blanco DECam Bulge Survey”

Current theories for galactic formation and evolution are lacking a definitive description of galactic bulge formation and an explanation for the mixture of stellar populations seen therein. We observe that the Milky Way bulge has a bar like structure, and more recent observations also show an “X” shaped structure in the bulge as well, a further motivating reason to study galactic bulges in detail. Using multi-color photometry from the Blanco DECam Bulge Survey (BDBS) observations obtained with the Blanco 4 meter telescope at the Cerro Tololo Interamerican Observatory in Chile, we will characterize the stellar populations in globular star clusters in the Galactic bulge. The BDBS data will allow us to determine the clusters’ blue horizontal branch populations, metallicities, and photometric ages. Herein I present photometric color-magnitude diagrams of a few stellar clusters in the survey region.

P7 - Roy Reger IU Bloomington

“Neutral Hydrogen Analysis of the Dwarf Irregular Galaxy WLM”

Observations of neutral hydrogen provide a powerful tool to probe the kinematics of galaxies. Neutral hydrogen is ubiquitous in the interstellar medium. Therefore, its observation allows the derivation of gas kinematics well beyond the stellar disk. Using archival HI observations from the Very Large Array, the kinematics of the dwarf irregular galaxy WLM are analyzed. Analysis of optical and HI images yield a baryonic mass of $8.4 \times 10^7 M_{\odot}$ and the derived kinematics yield a dynamical mass of $9.3 \times 10^8 M_{\odot}$. These results indicate WLM is very dark matter dominated (91% at the last measured point), which is characteristic of dwarf galaxies.

P8 – Jeremy Burnett IU Kokomo

“Numerical Simulation of Accretion Induced Collapse of One Component of a Double White Dwarf Binary System”

The accretion of mass by one member of a double white dwarf binary system from the companion star may lead to that star exceeding the Chandrasekhar stability limit, and rapidly collapsing into a much smaller neutron star, thus this evolutionary event is referred to as accretion induced collapse. Due to the length of time for the accretion of mass, the only means of studying this event is through the use of numerical simulation. Although several simulations of AIC have been performed in the past, there is little consensus among astronomers as to what conditions directly favor a collapse as opposed to nuclear detonation. The variables we examine include; rate of mass exchange, central density of accreting star, mass ejected from system during accretion, debris disc composition, and the rotational profile on the rate of change of the orbit of the stars. An efficient method for testing several sets of variable combinations of AIC is through the use of numerical simulations. One goal of the initial phase of this study is to examine the general properties of the merged object and establish a standard of comparison with future work that will include nuclear reactions. The ultimate goal will be to determine which elements of numerical simulations are robust and predict what the observational signatures of AIC should be.

P9 – Jiawei Chen IU Bloomington

“Up in the Air: Ground Effect of Propellers and Altitude”

The purpose of this study is to examine the impact of the Ground Effect (GE) on the thrust output and efficiency of small-scale electric-powered rotorcraft, such as model helicopters and multicopters. The effects of this phenomenon must be considered when designing and testing such vehicles, to avoid overestimation of actual performance. Studies show that the ground effect can cause higher-than-expected thrust in static ground-level propeller tests, which may therefore lead to an underpowered aircraft at flight altitudes if such test data were considered in the selection of lifting propellers and power systems. Experimentation consists of thrust measurements of various propeller and motor configurations at varying heights and above various surfaces to determine the relationship between thrust output and efficiency, distance from the ground, and surface materials.

P10 – Amanda Justinano IUPUI

“Test Suite Node Manager”

The goal of this research project is to establish a well-designed node manager that can positively assist with distributed system testing. Current development emphasized on distributed systems node manager has been implemented by the Component Work Load Utilization Test Suite (CUTS). Distributed systems are widely known as systems that a network of computers implement. These systems provide a big advantage for implementation of large pieces of software due to its speed and ability to be distributed. However, distributed systems are hard to manage and it is often the case that a system has not been properly tested due to its software complexity and management availability. Distributed systems key functions revolve around reliability, performance and scalability, therefore a tested system is crucial to the functions of such systems. In this project, we will concentrate on building a node manager implemented with Node.js framework under JavaScript programming language, with the purpose of creating a more efficient method that will advance distributed systems testing. The significance of this project is to provide a methodical approach that can be used in a wider scale for future testing systems.

P11 – Holly Roberts IU Kokomo

“Analyzing Geographic Structure Using Genetic Variation of *Elymus Canadensis*”

Elymus canadensis (Canada wildrye) is native to the central plains of North America and like many cool-season grasses, it hosts maternally inherited *Epichloë* fungal endophytes. Interactions between grasses and *Epichloë* endophytes can be mutualistic, although the ecological effects of this specific symbiosis with *E. canadensis* is not well understood. Genetically, the *Epichloë* endophytes of *E. canadensis* have significant geographic structuring, and understanding wildrye genetic and geographic variation may offer insight into the nature of the host-endophyte symbiosis. According to coevolutionary theory, it is predicted that similar geographic patterns of genetic variation will be found in both wildrye and fungi. Populations of *E. canadensis* ranging from Oklahoma to Minnesota were sampled, and the rps16 chloroplast gene was sequenced. Three SNPs were found in the rps16 intron, and variation in these SNPs appears to be geographically structured. Although these SNPs likely do not directly influence the interaction between the host and its endophyte, we plan to compare the variation we see in this chloroplast gene with variation found in *E. canadensis* nuclear genes and with variation seen in the maternally inherited *Epichloë* in order to determine the role of genotype interactions in this symbiosis.

Session I Poster Presenters

9am – 10am

P12 – Fatima Delgado IUPUI

“Comparing the effectiveness of the normalization of Dyrk1a in rescuing cognitive phenotypes in a Ts65Dn model of Down Syndrome”

Down syndrome is caused by trisomy of human chromosome 21 (Hsa21) and affects ~1/700 live births. Overexpression of *DYRK1A*, a gene found in three copies in humans with DS, has been linked to alterations in brain function. The Ts65Dn mouse model contains about half of the orthologs found on Hsa21 and is commonly used in DS research. Two approaches to correction of abnormal Dyrk1a activity were tested in this study. Epigallocatechin-3-gallate (EGCG), an inhibitor of Dyrk1a that has been proposed as a possible treatment for cognitive deficits associated with DS, was given via oral gavage (200 mg/kg/day). In addition, Ts65Dn-Dyrk1a (+/-) mice, with genetic normalization of the copy number of Dyrk1a in an otherwise trisomic mouse, were compared to Ts65Dn mice (with 3 copies of Dyrk1a). We examined effects on a test of motor coordination ability using a balance beam task, known to depend on cerebellar function, a brain region known to have structural abnormalities in Ts65Dn mice. Briefly, mice traversed beams in descending widths of 12, 9, and 6 mm. Performance was scored from video playback by recording the number of paw slips during each traversal. All trials were scored by three independent observers blind to experimental condition. We hypothesize that the EGCG treated and Ts65Dn-Dyrk1a(+/-) mice will perform as well as euploid mice. Alternatively, a lack of normalization of pawslips in EGCG treated and Ts65Dn-Dyrk1a (+/-) mice could indicate that correcting Dyrk1a expression may not be sufficient to rescue the functional correlates of cerebellar abnormalities.

P13 – Matthew Anderson IUPUI

“Regulation of Actin-Based protrusions by the hedgehog Pathway”

Actin-based protrusions called stereocilia are found on the apical surface of auditory hair cells, where they transduce sound into an electrical signal. Numerous stereocilia are organized into a highly patterned bundle that consists of three tiered rows with an overall chevron shape. In the developing auditory hair cell, a primary cilium linked to the vertex of the bundle is known as the kinocilium. The kinocilia are required for normal stereocilia bundle shape and orientation but are disassembled after the bundle is fully formed. While the mechanisms by which the kinocilia regulates stereocilia bundle patterning are not well understood, primary cilia are known to regulate the hedgehog signaling pathway. To determine if hedgehog signaling regulates apical actin protrusions, we overexpressed hedgehog activators and repressors, both in auditory hair cells *in vivo* and in an epithelial cell culture system that form long apical protrusions. Overexpression of pathway activators Gli1, Gli2, Gli3 in the cell model showed a mild reduction in the apical protrusion length. Constitutively active SmoA1, known to both activate the pathway and also have non-conical activity, resulted in protrusions with variable length and irregular morphology. Finally, expressing the Gli3R repressor caused a significant increase in apical protrusion length. In auditory hair cells, overexpression of the pathway activator Gli1 did not affect stereocilia morphology. However, Gli3R expression prevented normal cilia disassembly in a fraction of hair cells. Interestingly, the persistent kinocilia were tightly associated with stereocilia that were dramatically elongated and in bundles that had adopted a circular rather than chevron shape. Together, these data suggest primary cilia and hedgehog signaling regulate apical actin morphology.

P14 – Taylor Dietl IUPUI

“The Effects of Garlic on Nicotine-Induced Streptococcus Mutans Biofilm Formation”

This project assessed the bactericidal capability of garlic on a significant contributor to human dental caries: *Streptococcus mutans*. In my experiments, I tested the ability of garlic to both inhibit biofilm formation and disrupt an established biofilm of *S. mutans* which leaves the only possible state of bacteria as planktonic. If the planktonic bacteria present in solutions of garlic are not viable, the bacteria are being killed. In this project, I assessed the inhibition of biofilm formation by using a 96-well microtiter plate, incubating *S. mutans* in increasing concentrations of garlic solution and increased levels of CO₂ at 37 °C. Biofilm formation was inhibited at a concentration of garlic of 0.0449 g/mL, suggesting that there was significant inhibition with the original solution of 1.436 g/mL garlic. When nicotine was added in increasing concentrations, it did show an ability to enhance the biofilm formation of *S. mutans* even in the presence of garlic; however, when compared to a control with nicotine in TSBS, the garlic was able to reduce absorbance in all concentrations of nicotine except those where the nicotine concentration was too high for growth of *S. mutans*. Additionally, although the effects were not as profound as the inhibition of the initial biofilm, there was a significant reduction of established biofilm with garlic concentrations as low as 0.0875 g/mL compared to the TSBS control. These results indicate that garlic, even in relatively low concentrations, can be an all-natural source to help reduce the incidence of dental caries.

P15 – Jason Hackett IUPUI

“Effect of Kinesio Tape on Heat Pain Sensitivity”

The significance of Kinesio tape and the reported abilities to reduce perceived musculoskeletal pain have gained popularity as a therapeutic intervention for sports teams and use by medical professionals. It is unknown whether Kinesio tape exerts an analgesic effect over and above a placebo response and whether there is an optimal intensity (tension) of the tape to produce analgesic effects. Thus, this study aimed to examine the analgesic effects of Kinesio tape applied at various tensions on experimentally induced pain relative to placebo and control group conditions. Six healthy adults have currently completed the study and enrollment is ongoing. Participants completed 4 sessions on different days that included one of the four following 20-minute interventions on each day: Kinesio tape applied at low tension, high tension and no tension (placebo), and no tape applied (control). Kinesio tape was applied on the right ventral forearm from the wrist to the elbow. Heat pain thresholds (HPT) were measured on the right ventral forearm prior to taping and while the tape was on the forearm (post-test). Paired t-tests were used to examine differences in HPTs between the pre-test and post-test for each condition. Increased HPTs were observed only for low tension (Pre=45.9±2.4°C, Post=46.7±2.1°C) and high tension (Pre=46.6±2.7°C, Post=47.6±1.9°C) conditions (p's≤.05), demonstrating lowered perceived pain. These results suggest that Kinesio tape can produce analgesic effects for heat pain thresholds, potentially acting as an effective method of treatment.

Session I Poster Presenters

9am – 10am

P16 – Roshni Patel IUPUI

“Efficacy of normalizing of Dyrk1a copy number in the Ts65Dn mouse model for Down syndrome in rescuing learning and short-term memory deficits”

Elucidation of the underlying mechanisms involved in brain-related deficits of Down syndrome (DS) would be useful for consideration of possible therapeutic interventions. Through the study genotype-phenotype correlations in DS, certain triplicated genes may be strong contributors to the development of these phenotypes. One such gene of interest is DYRK1A, which has been implicated in functions related to hippocampus and cerebellum. Studies have confirmed that increased *Dyrk1a* dosage plays an important role in the aberrant brain development and associated learning and memory deficits. To evaluate the role of Dyrk1a in learning and memory processes, we have normalized *Dyrk1a* copy number in Ts65Dn mice and reduced *Dyrk1a* copy number in otherwise euploid mice for a total of three alternative genetic doses of *Dyrk1a*. The three alternative doses of Dyrk1a allow for the evaluation of dose-dependent effects of Dyrk1a on the development and maintenance of faculties used for learning and short-term memory. A novel object recognition (NOR) task has been used to assess learning and short-term memory in these knockdown models. In addition to analyzing behavioral changes due to *Dyrk1a* modulation, we are determining levels of Dyrk1a activity in the cerebral cortex and hippocampus for all genotypes through an HPLC-based activity assay. Activity levels of Dyrk1a in these brain structures will be correlated to NOR performances. Anticipated results include decreased discrimination ratios in mice with altered gene dosages of *Dyrk1a* corresponding to altered activity levels of Dyrk1a. These results will provide confirmation on whether *Dyrk1a* dosage can be targeted by neuropharmacotherapies for DS

P17 – Brandon Wind IUPUI

“The Effect of Transcranial Direct Current Stimulation on Conditioned Pain Modulation in Healthy Older Adults”

Recent evidence suggests aging is associated with reduced endogenous pain inhibitory capacity, placing older adults at risk for developing chronic pain. Transcranial direct current stimulation (tDCS) is a non-invasive brain stimulation technique capable of modulating excitability of cortical and cerebellar neurons. Recent work shows anodal tDCS of the motor cortex (M1) improves pain inhibition in healthy young adults. The purpose of this study is to expand upon this and study the effects of anodal tDCS on descending pain inhibition in healthy older adults. Enrollment in this study is ongoing, with the expectation that 15 total older adults. Subjects will complete three sessions on separate days that will include one of the following 15-minute experimental conditions during each session: (1) anodal M1 tDCS, (2) anodal cerebellar tDCS, and (3) sham tDCS. Order of experimental conditions will be randomly assigned for each subject. A dynamic quantitative sensory test called conditioned pain modulation (CPM) will be used to assess pain inhibitory capacity before and after tDCS. A time (pre-test, post-test) x tDCS condition (Sham, M1, cerebellar) repeated measures ANOVA will be conducted on CPM score and used to test our hypotheses. In this study, we expect to see increased pain inhibition on the CPM test when anodal tDCS is applied to the motor cortex and cerebellum. Overall, these results will help clarify the ability of tDCS to enhance pain inhibitory capacity in older adults and potentially reduce their likelihood of chronic pain development.

P18 – Siarra Singer IU Kokomo

“Transition to Kindergarten for Students with Special Needs: A Review of the Literature”

Transition to kindergarten is an important milestone and a sensitive developmental stage for young children and their families. While most children easily transition to kindergarten, some children have difficulties successfully adapting to the new environment. In particular, given challenges in communication skills, social development, problem solving skills, or ability to adapt to new circumstances, children with disabilities are at-risk for encountering challenges in the transition process. Furthermore, transition planning is critical for ensuring continuity in the services and educational programming children with disabilities need to be successful in school. While numerous studies have focused on transition to kindergarten for typically developing children, a limited body of empirical studies focused on examining transition for children with disabilities. We reviewed relevant studies focused on transition to kindergarten for preschoolers with disabilities to outline effective practice and directions for future study. A systematic literature search of multiple relevant databases (i.e., ERIC via EBSCO, Academic Search Premier, and PsychINFO) was conducted to identify all journal articles related to transition to kindergarten for children with disabilities. From a total of 159 initially identified articles 22, met the inclusion criteria. Data extracted from each study included: participant information, child disability, research design, and findings related to effective transition practices. Result of the analysis were organized in four categories reflecting patterns in the data: Student Centered Outcome Data, Barriers in the Transition Process, Successful Transition Practices, and High vs. Low Intensity Practices. Implications for current practice and future research will be presented.

P19 – Amber Kriech IUPUI

“Personal Leadership Development: Perceived Value of Peer Mentoring Experience”

IUPUI's Organizational Leadership bachelor's degree serves a blend of traditional and transfer students. Collaborating with faculty, as part of a capstone project, a senior student developed and implemented a pilot peer mentor program, aligned with department and campus student success initiatives. The mission of this new Peer Mentor program is to connect new OLS majors with graduating seniors or recent alumni who can help first-year students navigate the academic program and improve their college experience. This presentation captures the perceptions of peer mentor experiences in the pilot program and offers recommendations for change and future development based on initial evaluation.

Session I Poster Presenters

9am – 10am

P20 – Aspen Christian IUPUI

“Access to Physical Activity in Mapleton-Fall Creek: An Ethnographic Project”

The purpose of this research was to explore the physical activity resources available to the Mapleton-Fall Creek community members by using ethnographic methods. This was a group project undertaken as part of an Anthropology class in Spring 2016. The methodology included carrying out open-ended interviews with local residents, attending community meetings and events, and mapping relevant assets in the community. Key interviews were conducted with stakeholders in neighborhood organizations that aim to involve youth and seniors in physical activities. By attending community events and meetings, we were able to get insight into perspectives of those who have been directly affected by the access to, or lack thereof, physical activities and green spaces. We drew on data that shows the disparity in life expectancies between the Mapleton-Fall Creek and northern suburbs, where people have measurably longer lives than their counterparts in lower income neighborhoods. The Mapleton-Fall Creek Development Corporation has created green spaces and pocket parks throughout the neighborhood to increase access to physical activity. Overall, the results showed that residents believed they have adequate areas for physical activity. However, most of them noted difficulty accessing these areas whether it be because of faulty sidewalks or busy intersections without walkable pedestrian crossings. Our research showed that there need to be higher levels of community engagement. Community members suggested more programs in the pocket parks that encourage physical activity

P21 – William Jettinghoff IU Bloomington

“Free Will Belief as a Predictor of Self-Handicapping”

Philosophers have debated over the existence of free will and considered the ramifications of their conclusions on control and responsibility for centuries. Despite this rigorous discourse, little experimental research has examined the behavioral consequences of believing or disbelieving in free will. Of this work, none has explored the impact of free will belief on any self-protective mechanism, let alone self-handicapping. Given the centrality of control and responsibility to both free will and self-handicapping, this research aimed to do just that. Using a correlational design, this study sought to find evidence that having a stronger belief in free will and internal locus of control would be negatively correlated with trait self-handicapping. Results supported this hypothesis, trait self-handicapping was significantly negatively correlated with stronger belief in free will and a more internal locus of control. With this work as a foundation, future research will seek to substantiate a causal relationship between beliefs about free will and control with self-handicapping. This work stands to contribute to our understanding of belief in free will through its consequences for the Self.



INDIANA UNIVERSITY

POSTER SESSION II

11:00am – 12:00pm

Session II Poster Presenters

11am – 12pm

P22 – Dominik Kowalczyk (Northwest)

“Peptidoglycan Recognition Proteins Kill Escherichia Coli by Inducing Oxidative Stress”

Peptidoglycan Recognition Proteins, or PGRPs, are a unique class of molecules crucial to mammalian innate immunity. Three of the four naturally occurring PGRPs found in humans present direct bactericidal activity in bacteria by binding to, but not crossing, the outer membrane. PGRPs foster the killing of Gram-positive and Gram-negative bacteria by inducing metabolic, oxidative, thiol, and metal stress. In this instance, we focused primarily on metabolic and oxidative stress. PGRPs induce oxidative stress in *E. coli* by activating the CpxRA two-component system, causing an increase in flux through glycolysis and the TCA cycle. The increase in metabolic flux yields an abundance of NADH, placing stress on electron chain oxidoreductases. Furthermore, due to PGRP binding, it is hypothesized that the flow of electrons from complexes I and II to cytochromes is impeded. Electrons are unable to be transported to cytochromes, resulting in erroneous reduction of oxygen as the final electron acceptor. Instead of yielding H₂O, this mechanism yields hydrogen peroxide, leading to *E. coli* cell death. The manipulation of cellular stress induced by PGRPs could possibly house an effective means of designing new approaches to antibacterial treatment.

P23 – Belinda Petri (Southeast)

“Investigating Protein Interactions of the Pyridoxal 5'-Phosphate Synthase Complex of Arabidopsis Thaliana”

Vitamin B6 is a required coenzyme for many biochemical reactions within cells, including amino acid metabolism, hormone biosynthesis, heme biosynthesis, carbohydrate metabolism and transcriptional regulation. Although it is a required coenzyme for all animals, including humans, animals cannot synthesize this important compound. Instead, we rely on plants that we eat as a source of this nutrient. In *Arabidopsis thaliana*, a model plant organism, vitamin B6 is made by Pyridoxal 5'-Phosphate Synthase (PLP Synthase). PLP Synthase is a complex of 24 protein subunits. The subunits are of two types, PDX1 and PDX2. While there is only one type of PDX2 protein, there are three PDX1 homologs: PDX1.1, PDX1.2, and PDX1.3. Our lab is investigating whether or not the proteins involved in the PLP Synthase complex interact with other proteins in the cell via a Yeast 2-Hybrid (Y2H). We have identified several putative interactions, and are in the process of verifying these results. New information regarding novel protein interactions of the PLP Synthase complex could provide new insights into the role of vitamin B6 metabolism in plants

P24 – Kenedi Divine (Southeast)

“GC-MS Studies of Time-Dependent Compositional Change in Single-Plant Extract”

The use of herbal medicine or remedies is very prevalent in less-developed countries. In many ways, the health of a country's people depends upon access to herbs for varying illnesses. Studying plant extracts in the laboratory can aid in standardizing herbs and providing more knowledge on different plants for the health of people worldwide. In this study, samples of a herbal extract used for medicinal purposes in some areas in Cameroon was analyzed by Gas Chromatography-Mass Spectrometry (GC-MS) method. Samples were obtained by methanol extraction as well as water extraction to mimic the traditional preparation technique. GC-MS results show that there are about 4 to 5 main components in the extract. The results also indicate that the methanol extract had higher concentrations of the components than the water extract and that over time, the methanol extract was more resistant to compositional change than the water extract. These results indicate that herbal extracts obtained with water as the solvent are more likely to lose their effectiveness over a short period of time. However, adjustments can be made to the procedures to ensure longer shelf-life for optimal results in combatting illness.

P26 – Casey Fee (Southeast)

“Effectiveness of Childhood Immunizations in Honduras”

A highly effective way to prevent the spread of infectious diseases in third world countries, such as Honduras, is to ensure every child has access to childhood immunizations. According to the World Health Organization (WHO) and census records, “Despite geographical difficulties and barriers to access, the local database and Honduran community health workers have developed a thorough system for ensuring that children receive their immunizations on time.” I will delve into the system Honduras has in place to see if it is, in fact, combating the spread of diseases, how it compares to the United States, and if there is room for improvement. I will use statistics from multiple sources, including pharmaceutical companies and census records from Honduras and the United States.

P27 – Stefanie Soy (Northwest)

“Quantitative/Qualitative Analysis of Neonicotinoids and Glyphosate in Northwest Indiana Honey and Wax Samples”

Current research is showing that extensive use of persistent chemicals such as neonicotinoids and glyphosate are threatening the population of honey bees.¹ Through community outreach with members of Northwest Indiana Bee Keepers Association, we wish to bring awareness to the types and levels of these insecticides and its impact on NWI honey bee colonies. The preliminary risk assessment performed by the EPA, identified a residue level for imidacloprid, a type of neonicotinoid at 25 ppb and is used in our study as a guideline.¹ The study provides preliminary results of tandem liquid chromatography-mass spectrometry (LCMS/MS) of honey and wax samples. The insecticides were extracted through a solvent based procedure using QuEChERS method.² The analysis serves to show the presence and levels of common insecticides, neonicotinoids and glyphosate, used both agriculturally and commercially in NWI. Studies have shown that exposure to these chemicals, based on their concentration and persistence in the environment, have a negative effect on beehive populations.³ The loss of entire colonies, poses a great threat to the environment and the US agricultural system.⁴ Samples were collected over several different counties in NWI using standard collection protocols to prevent contamination and limit pesticide degradation.⁵ As there are several causes linked to the decline of honey bees in the US, this study wishes to focus on insecticide limits, with future research focusing on an expanded set of pesticides including fungicides and herbicides .

P28 – Christine Yang (Bloomington)

“Synthesis and Analysis of Gold Nanorod Encapsidating Virus-like Particles with TEM and AFM”

By understanding the virus structure and assembly, researchers potentially can manipulate the virus to encapsulate medicinal drugs or nanoparticles for imaging or therapeutic purposes. The shape control of virus assembly around the cargo is important for the efficiency in targeted delivery to undesirable, cancerous cells. Specifically in my research, my goal is to find the optimal conditions for gold nanorod (GNR) synthesis through seed-mediated growth, then use them for templated self-assembly of virus proteins with a purpose to form virus-like particles that share similar structural features to a virus but have a different shape. I use transmission electron microscopy (TEM) to image and measure the GNRs size and size-distribution. Also, I analyze the structural properties of the virus protein shell with atomic force microscopy (AFM), which allows high resolution imaging and analysis of single virus-like particles.

Session II Poster Presenters

11am – 12pm

P29 – Abigail Parker (IUPUI)

“Cognitive Therapeutics in a Mouse Model of Down Syndrome: Comparison of Pharmacological and Genetic Targeting of Dyrk1a in Ts65Dn Mice on Spatial Navigation Performance in the Morris Water Maze”

Down syndrome (DS) is caused by the triplication of chromosome 21 (Hsa21) in humans and is the leading genetic cause of intellectual disability. Ts65Dn mice are used as a model of DS, and have ~50% of homologous Hsa21 genes in three copies. Overexpression of *Dyrk1a*, a gene found to be triplicated in both individuals with DS and Ts65Dn mice, has been linked to learning and memory deficits in mice. Morris water maze (MWM) is a hippocampal-dependent learning task that tests visual-spatial learning. Epigallocatechin-3-gallate, a natural polyphenol of green tea, has been shown to improve latency in the MWM task in transgenic *Dyrk1a* (TgDyrk1a) mice. This study compares MWM performance of EGCG-treated Ts65Dn and Ts65Dn, *Dyrk1a*^{+/+} (trisomic with only two copies of *Dyrk1a*) mice to determine if both pharmacological and genetic methods of reducing *Dyrk1a* activity rescue learning and memory deficits. We hypothesize that EGCG-treated Ts65Dn and Ts65Dn, *Dyrk1a*^{+/+} mice will perform as well as euploid mice on MWM, as both pharmacological intervention via EGCG treatment with 200 mg/kg/day and genetic knockdown of *Dyrk1a* should normalize the expression of *Dyrk1a* in Ts65Dn mice to euploid levels. This study will provide crucial insight into *Dyrk1a* as a genetic target, as well as EGCG as a therapeutic for DS.

P30 – Michelle Believeau (South Bend)

“The Similarities between Christianity and New Religious Movements: Are people’s perception of Christianity and New Religious Moments dependent on their level of religiosity?”

Religious Movements (previously referred to as “cults”). Specifically, this research determined whether or not there was a link between a person’s own levels of religiosity and their perception of New Religious Movements (or cults). This study was administered to both introductory to psychology students located at Indiana University South Bend as well as other individuals who were recruited via Facebook. Data collection is currently underway. Participants completed a survey online consisting of the Post Critical Belief Scale (Duriez and Hutsebaut, 2007) and an adaptation of the Inventory of Religious Beliefs (Brown & Lowe, 1951). Researchers hypothesized that those individuals who consider themselves nonreligious will notice similarities between Christianity and New Religious Movements. This research hopes to connect individuals on a more global level by understanding the relationships of Christianity and New Religious Movements and how they are similar in beliefs.

P31 – Enoch Oduro (South Bend)

“Who is to Blame for Your Procrastination?”

This study was designed to identify the relationships between cause and attributed blame when dealing with procrastinatory behavior. In this instance cause refers to anything that prompts a person to assign blame. Procrastination has been shown to be quite prevalent in academic settings, and as a result procrastinatory behaviors dealt with in this study are academic in nature. Applying for a scholarship, studying for an exam, and getting started on a group project are all examples of instances in which procrastination can occur in an academic setting. In the present study Participants are presented with scenarios in which the reason for procrastination (internal, external) and subject(self, other) are regulated. This study will help bridge the gap of knowledge in the field of procrastination and how it relates to attribution.

P32 – Aaron Acton (Southeast)

“Video Games and Education: Why They Should Be Friends”

This study examined the links between education caused by playing video games and the subsequent effect it has on loneliness. The purpose of this study is to show that video games do, in fact, have a positive relationship with grades and introverted behavior. Seventy-five students were recruited from a medium sized university from a large, Midwestern, metropolitan area while forty-seven participants were recruited from Facebook. The participants ranged in age from 18-60 (M = 19.75) 25% were female while 75% were male. Participants reported playing an average of 30 hours of video games per week (M = 23.75, SD = 4.5). We expect to find that video games will have a significant positive relationship to cognition and education. Video game playing should increase math scores and reading comprehension in consistent gamers. I also expect to find that those who play video games with others will be less introverted than those who don’t play video games at all. However, those who do play video games but not with others should have more introversion than those who play with a group.

P33 – Anne Barrett (Southeast)

“The Influence of Humor on Word Memory”

The purpose of this research is to determine whether visual humor affects memory. Previous research has shown that emotion evoking contexts have a compelling impact on the memory process. Research also shows that neutral, visual material with humorous labels can lead to enhanced recall. The current study consisted of participants who were recruited from a medium sized university, in a large metropolitan area in the Midwest or online through Facebook. Participants viewed a ten item word list in which they were asked to memorize for 30 seconds followed by twelve humorous pictures which participants rated how humorous the pictures were perceived to be. The participants were then asked to recall and report the word list. Participants were then given a second ten item word list in which they were asked to memorize for 30 seconds followed by twelve non amusing pictures in which participants rated how humorous the pictures were perceived to be. The participants were then asked to recall and report the word list. We hypothesize the participants will recall more words after viewing the humorous pictures.

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P34 – Stefanie Chumbley (Southeast)

“Learning Style Perceptions: Teachers’ Perceptions of Student Learning Styles”

The purpose of this study is to examine the relationship between student and teacher learning styles in an elementary school setting. The goal of the research is to determine if there is evidence of teachers unconsciously projecting their own learning style onto the students in their class. In order to examine this, I am conducting a two-part survey to obtain data about teachers’ perceptions of the learning style of the majority of the students in a class as well as the learning styles of the teachers themselves. The data from the surveys will be processed using a two-way ANOVA once the data collection process is complete. The results and conclusion will be presented.

P35 – Chandler Cooper (Southeast)

“Creating an Online Community”

The need for a social media presence in universities and organizations increases as new technology becomes available to students. Marketing writing centers online through social media can create a friendly environment for students, enhance communication, and create interest in The Writing Center. Advertising writing center philosophy through social media platforms will inevitably allow students and faculty to recognize the mission and avoid misconceptions regarding writing center theory. While researching other writing centers’ social media accounts, I noted significant deficiencies. Accounts were often left idle for extended periods of time causing a decrease in traffic. A decrease in traffic implies disinterest, and disinterest results in a lack of engagement between the community and The Writing Center. By researching social media accounts and scholarly articles, I’ve gathered a blueprint on how to attain a following on social media, organize a posting schedule, and determine what content to release. Results show that The Writing Center philosophy has become better understood on campus by applying social media structure. I wish to present my strategies on how to better manage The Writing Center’s social media accounts in order to communicate the methodology of The Writing Center more efficiently.

P36 – Jordan Eastridge (Southeast)

“First We Dream: Exploring the Function of Dreaming as a Learning Process”

As we sleep we create an environment, an unconscious schema representative of our present memories, past experiences, and entirely unique imagination thriving inside of us. Presently, there is little school of thought attributing dream function as a learning process. This has led to very insufficient research exploring the healing properties of dreaming, such as lucid dreaming. However, the current science which studies the biological processes during sleep indirectly supports the idea that dreaming integrates behavior into our minds through a learning process. With this research experiment I suggest dreaming has been a fundamental building block for developing people’s attitudes, minds, and behaviors. To test this hypothesis participants watched two different movies. The control movie was a happy, children’s movie. The manipulation interrupted participants from finishing the thriller movie at the most intense part, this was done to arouse anger for a negative movie experience. They were surveyed for their movie experience and agreeableness from the five-factor model. Participants completed dream journals, measuring the negativity and positivity of their dreams by a Linguistic Word Count, and reported their perception of the movie experience with the same survey prior to sleeping. The hypothesis suggests participants will report a different perception of their movie experience based on their favorability of their dreams based on their level of agreeableness to the study’s manipulation. The goal of this research project will call attention to the importance of dreaming for our development and incorporate lucid dreaming into therapy to prevent counteractive coping mechanisms strengthened during dreams.

P37 – Brandon Wysong (Kokomo)

“Differential Effects of Heavy Metal Ions on Recombinant Green-Fluorescent Protein (GFP)”

Heavy metal salts have been shown to interact with proteins and destabilize native structures. In this study, the effects of various heavy inorganic metallic salts on the denaturation of purified green-fluorescent protein (GFP) were examined. The initial screening indicated that the majority of heavy metals (Ag^+ , Co^{2+} , Cr^{3+} , Pb^{2+} , Hg^{2+} , Zn^{2+} , Fe^{3+} , and Cu^{2+}) instantaneously denature GFP, as evidenced by the immediate formation of a heavy precipitate. Interestingly, the denaturation of GFP by Al^{3+} had a different type of outcome, as indicated by the loss of fluorescence but no visible aggregation.

Currently we are further characterizing the interaction between Al^{3+} and GFP. Our preliminary results suggest that the Al^{3+} binds irreversibly to GFP and deactivates the chromophore, while not compromising the integrity of the overall structure of the GFP. Overall, the results indicate a high degree of specificity involved in the denaturation of GFP and that each heavy inorganic metallic salt interacts differently with GFP.

P38 – Mary Elmasry (Kokomo)

“Photo electrochemical and Magnetic Studies on Photoactive Interface poly 2,2 Bithiophene/ Fe_2O_3 ”

Organic/Inorganic Interface or (O/I) assemblies were created from poly 2,2 dithiophene (PDTh) and Fe_2O_3 nanoparticles. The inorganic oxide Fe_2O_3 nanoparticles were doped with MgO to ensure the p-type nature of Fe_2O_3 . Mg-doped Fe_2O_3 nanoparticles were occluded during the electropolymerization process of DTh on a FTO glass electrode. The O/I assemblies were subjected to photoelectrochemical investigation in aqueous electrolytes containing acetate, citrate, Nitrates, and phosphate. As all components of the assembly are p-type semiconductors, the produced interface are of a p-p junction nature. Results show that the behavior of the assemblies reflects formation of hybrid sub-bands as a product of band alignments between the organic film and Fe_2O_3 . Furthermore, O_2 played an important role in the charge separation and transfer processes. The assembly responses to applied magnetic field was investigated and reported. The results were explained on the basis that external magnetic fields affect the photogeneration of singlet/ triplet radical pair processes.

P39 – Eugueni Alexeev (Bloomington)

“Analysis of Kaon Pair Production from the CLAS Detector”

Physics at the subatomic scale is dominated by the strong nuclear force, which is responsible for holding together atomic nuclei and is the governing force of the constituent quarks. The strong force is still poorly understood, but an effective way of studying it is through high-energy particle collisions, which can produce short-lived particle states called resonances. Analyzing the resonance spectrum of particular reactions can improve our knowledge of the strong force and offer a window towards studying physics beyond the Standard Model. In this ongoing analysis, we examine the production of kaon pairs from the scattering of unpolarized photons against a proton target, using data recently taken from the CLAS detector at Jefferson Lab, with photon energies E_γ up to 5.5 GeV. Important sets of observables including the differential cross sections and the spin density matrix elements will be extracted and compared to existing theoretical models of the reaction. The di-kaon spectrum produced in the reaction is expected to be dominated by vector meson resonances, but contribution from higher-spin states is also a possibility.

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P40 – Armelle Metangmo (IUPUI)

“Electrochemical Detection of Bacteria in Food and Water Using Paper-based Devices”

Foodborne bacterial infection and diseases are the most common source of illness and death around the world. There is a critical need to test food, beverages, and water before consumption, as well as monitor their production. Populations in developing countries, however, depend on point of care (POC) analyses due to the lack of infrastructure and laboratories. In the last decades, paper has been employed as a substrate for many of those POC tools, most often combined with colorimetric assays. In particular a portable, low-cost, paper-and-tape device permitting collection, culture and analyses was developed. Some difficulties remained, when analyzing samples with different environments; such as interferences in colored samples, difficult interpretation and low sensitivity. To overcome these difficulties, we are designing a new generation of paper-based culture devices using electrochemistry for the detection of bacteria. We used resazurin as a colored indicator of metabolic activity and applied it to validate the new elements needed for the fabrication of the electrochemical device. We demonstrated that the electrodes stencil-painted on paper are suitable for electrochemical impedance spectroscopy as they displayed the typical Nyquist plot expected for good electrodes. Optimization of the design and bacteria detection is ongoing using the non-pathogenic bacteria *E. coli* K12.

P41 – Oliver Strobel (IUPUI)

“Cloning and Expression of the Putative Benzoylformate Decarboxylases from *S. Sulfataricus* and *A*”

Benzoylformate decarboxylase (BFDC) is a thiamin diphosphate (ThDP)-dependent enzyme that catalyzes the nonoxidative decarboxylation of benzoylformate, generating carbon dioxide and benzaldehyde. It is the penultimate enzyme in both the mandelate pathway and the D-phenylglycine degradation pathway. BFDC is found as part of an operon and, in both pathways, a benzaldehyde dehydrogenase gene is found directly up- or downstream of the BFDC gene. The recently established ThDP-dependent Enzyme Engineering Database (TEED) has listed more than 700 genes annotated as BFDCs, including one from *Sulfolobus sulfataricus* (SsBFDC) and *Achromobacter piechaudii* ATCC 43553 (ApBFDC). However, there is no evidence that either pathway for benzoylformate formation exists in either genome. Further, sequence alignments of SsBFDC with the well characterized enzyme isolated from *Pseudomonas putida* (PpBFDC) suggest there will be active site substitutions in SsBFDC that are known to alter substrate specificity, and to reduce activity with benzoylformate. Conversely, in ApBFDC, the active site is expected to look more like that of PpBFDC. Here we report the cloning our efforts to clone, express and purify these two “BFDCs”.

P42 – Aaron Day (Southeast)

“Hafnium Inspired Acylation of Alcohols and Polyols with Hindered Anhydrides”

A new and highly efficient method for activating highly hindered acid anhydrides using Hafnium triflate is described. This new acylation protocol is very efficient and require low catalyst loading at room temperature. This new method has been extended to different alcohols and polyols to yield the corresponding esters in good to excellent yields.

P43 – Lindsey Earl (Southeast)

“Highly Efficient Copper Inspired acylation of Alcohols and Polyols”

A new and highly efficient method for the acylation of alcohols and polyols using simple and highly hindered acid anhydrides is described. This new method relies on the capacity of a copper catalyst to activate acid anhydrides to direct the acylation reaction. This new acylation protocol is very rapid and proceed with low catalyst loading. This new method has been extended to a variety of different alcohols and polyols to provide the corresponding fully acylated products in excellent yields.

P44 – Michaela Shelton (Southeast)

“Exploring the Use of Cationic Copper Catalyst in the formation of Glycosides”

A new and highly efficient method for the formation of glycosidic linkage is described. The method relies of the capability of cationic copper catalyst loading and has been extended to a variety of glycosyl acceptors to form the corresponding glycosides in excellent yield.

P45 – Coty Flannery (Southeast)

“A Study of Deltaic Sediments at Seven Springs Lake Harrison County, Indiana”

Seven Springs Lake has been filling with sediments from local erosion since it was constructed in 1978. This study was designed to identify and measure sediment types in a delta formation, sourced from a karst drainage basin. Sands, silts, and clays transported by fluvial processes are deposited at varying rates and volumes based on the discharge of the stream in the form of bedload, suspended load, and dissolved load. A grain size analysis was conducted to evaluate sediment particle sizes in a given depositional environment so as to determine sediment transport mechanisms. Investigating delta facies at Seven Springs Lake provided useful information about local erosion from streamflow and deposition used to determine which sediment transport mechanisms have negatively affected the biological health of the lake by reducing the availability of spawning grounds. Sediment analysis was performed by taking shallow core samples from the delta and separating the particles by size to measure the volume of sand, silt, and clay in a vertical column. The volume data was graphed to be used to show a trend of the most to least prevalent modes of sediment transport. The information gathered will be key in discovering which particle types are most abundant. Use of this data will provide valuable information for future watershed

P46 – Laura Luther (IUPUI)

“Characterization of ABS-HDPE Blended Virgin Filaments”

The purpose of this research is to determine the suitability of materials for filament extrusion-based additive manufacturing (3D printing). A systematic process to characterize a material was proposed and applied to characterize plastic blends (virgin and recycled). Due to their abundance in the plastic industry, the focus was on High Density Polyethylene (HDPE) and Acrylonitrile Butadiene Styrene (ABS). The 3D-printed specimens produced were characterized chemically and mechanically and the 3D printing process parameters were optimized through testing for individual blend ratios. HDPE/ABS blend ratios used in this work include: 0%, 25% wt, 50%wt, 75%wt, and 100%. Relevant chemical and mechanical material properties were determined as well as the parameters that affect such properties. The chemical characteristics of the filaments were determined using Fourier Transform-Infrared Spectroscopy (FTIR) and Field Emission Scanning Electron Microscope (FESEM). The FTIR results showed that ABS and HDPE are considered immiscible. The results from the FESEM also verified immiscibility, but did show homogeneity throughout the filaments. The mechanical characteristics of the products are determined by tensile testing. The collected data is used to generate the material stiffness matrix as well as to determine their plastic and fracture

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properties. The results suggest that blending ABS and HDPE increases suitability for 3D printing with respect to pure HDPE. Future work consists on extending the blends to include biodegradable organic materials and utilizing additives to make them more suitable and improve the properties of the compound.

P47 – Michelle Nguyen (IUPUI)

“Introducing High Precision MEMS/NEMS Research Components into Electrical Engineering Elective Course”

In this work Micro-electro-mechanical system devices have been researched for a new research based course in electrical and computer engineering. The MEMS components under investigation cover bidirectional flow sensor, thermal sensor, gas sensor, pressure sensor. A thermal bi-directional integrated circuit flow sensor was designed with features including high precision response. The model considers heat pulses of 55 °C for a period of nearly 120 seconds and 50% duty cycles applied as thermal sources to the flow stream. The hardware design included one heating element and two sensing elements to detect the bi-directional flow. Platinum sensors were used due to their linear characteristics within 0 °C to 100 °C range, and their high temperature coefficient (0.00385 $\Omega/\Omega/^\circ\text{C}$). Polyimide thin film heater was used as the heating element due to its high throughput and good thermal efficiency. Gas, pressure, and temperature sensing devices utilize nanotechnology materials. Bridge circuits with instrumentation amplifiers are used in converting the mechanical energy into electrical energy. The latter can be processed by instrumentation amplifier circuits.

P48 – Ibrahim Momoh (IUPUI)

“Synthesis and Characterization of Nano-Sensing Devices”

The concentration of acetone and ethanol in human breath is known to have a correlation with blood glucose levels. In this research program fabrication and experimental procedures for development of nanomaterial-based highly sensitive acetone sensor is investigated. This includes (1) fabrication and development of interdigitated electrodes via lithography process (2) casting of nanomaterial on the interdigitated electrodes (3) testing of the sensor. It is important that the nano material shows alike characteristic over time. The degradation study on a set of already developed sensors will be conducted during the research program. Material sensitivity to acetone will be tested by alternately exposing the material to target vapor and humidified air in a test chamber, and measuring absorption and electrical properties. The poster will be presented to present fabrication and testing of the nanocomposite and sensors, and the experimental results.

P49 – Jonathan Abdo (IUPUI)

“Tracking the Deadly Chronic Diseases Through Social Media”

In this research, deadly diseases were tracked using social media. The deadliness of the disease was found to correlate with activity on social media in short term diseases. Expanding on this, Twitter status updates were used to track chronic diseases in social media using results state by state. The results were then compared to monthly rates of diseases from CDC data.

This represents a novel approach to tracking disease. We have found that short term diseases have been well studied, while chronic diseases were less studied. Fine tuning these results, one could track resurgence of diseases, frequency of diseases, as well as meta-information such as the effectiveness public outreach and awareness programs. It can also be fine-tuned to track effectiveness of health-care and the progression of diseases.

P50 – Amadin Agho (IUPUI)

“The Roles Gender and Service Experience Play in Tipping Behavior Among Millennials”

The purpose of the proposed study is to contribute to the literature by examining the influences for tipping among Millennials. This study examines the following questions: What are the general motivations for tipping among Millennials? Are Millennials with previous work experience in the service industry more likely to be aware of tipping norms? Are Millennials with previous work experience in the service industry more likely to give tips? Are there gender specific differences in tipping among Millennials? A tip is an optional reward or gift given by customers to a service worker to express their gratitude and appreciation for good service. Employees in the service industry, especially in restaurants and bars, depend on tips as a major source of income. Even though Millennials represent the largest generation in the United States, few of the studies on behaviors and attitudes on tipping have focused on this population. Participants were tasked with answering a one-time 32 question survey that took no more than 20 minutes. Subjects' responses to the surveys provided were analyzed in order to explore the research questions shown above. Analysis revealed significant differences in responses driven by participant gender, service experience, and their interaction.

P51 – Don McCraig (IUPUI)

“Are the BRICS Countries on The Decline?”

The purpose of this research is to discover if the BRICS theory, which states that the BRICS countries (Brazil, Russia, India, China, and South Africa) will be the largest economies in the world by the year 2050, is still an accurate prediction after internal and external factors have created economic instability throughout each BRICS country. This research is a prediction of where the power balance will be in the next 34 years. These countries take up half of the world's population, and their combined GDP is roughly \$16.6 trillion, which is 22% of the world's GDP. If even one of these countries' economy is experiencing instability, it has a ripple effect to many places around the world. This can already be seen with China's GDP drop from 7.3% to 6.9%. Because of this drop in their GDP, China began to buy less commodities which effected countries such as Brazil and many countries in Africa. Brazil is facing political/ social instability on top of having their worst recession in over three decades. Russia went into recession in 2014 which has reduced their GDP by 3.7% on top of experiencing political tension with other countries, and South Africa is being effected by lowered commodity prices as well, which is expected to lower their growth rate. Out of all the BRICS countries, India is the only one that has a steady growth rate and is conditioned to meet the expectations the BRICS theory coined in 2001. This research is still in its initial phase, so no results have been discovered yet, but through data and literature analysis and the expertise of different experts in the field, a formulated prediction can be formed to confirm or reject the notion that the BRICS are no longer on their way for economic dominance by the year 2050.



INDIANA UNIVERSITY

POSTER SESSION III

1:20am – 2:20pm

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1:20pm – 2:20pm

P52 – Jamieson Rhodes (IUPUI)

“Teachers’ Perspectives of Diverse Classrooms Explored Through Oral History”

This qualitative study will examine what type of effects that teachers’ upbringings and experiences could potentially have on their everyday interactions with students in their classrooms. More specifically, this research project focus will focus on how these effects can manifest themselves in teachers’ behaviors while instructing in diverse classrooms. The researcher will use oral history techniques to interview school teachers of different racial, social, and economic backgrounds to understand how the teachers believe that their own experiences with racial and ethnic diversity affect their attitudes toward students of color and issues of racial and ethnic diversity in the classroom. All the teachers interviewed will be asked the same open-ended questions. All interviews will be recorded with the use of digital recorder, and transcribed by the researcher. The transcriptions will be collected and constructed into an oral history that will be used to display the results of this research project. The ultimate purpose of this project is to use the results to create and sustain competent methods of teacher training in schools that are in diverse environments. Additionally, the undergraduate researcher is significant to this project as he brings biases, values, and perspectives based on two major roles: 1) as a young, male African American student and 2) as an African American volunteer educator at George Washington Community High School. The indicated roles will be pertinent because they aid in relating to both the teachers and students during the research and the research process itself.

P53 – Tyler Zuccarelli (Northwest)

“Stranger”

Stranger addresses the effect of technology on human relationships. My methods of research include observation of human interaction through technology and how those relationships change offline. The work is a reaction to these observations in the form of image-making, writing, design, assemblage and artist books. I hope to use these works as a starting point for conversations in the community that addresses the effect of technology on their everyday lives. I want to address the following questions: What will they learn about themselves? What will they learn about their relationships? How will they use this information moving forward in their daily interactions with people?

P55 – Kenda Eley (Southeast)

“Making Education Accessible to All”

Children in poor regions of the world face many obstacles when obtaining an education. Common problems include: inaccessibility of resources, gender and ethnic disparity, and the lack of infrastructure. This poster paper delves into each of these problems while offering solutions that provide hope for a positive future in the lesser developed regions of the world.

P56 – Brooklin Grantz (Southeast)

“Handouts and the Writing Center OWL”

Writing Centers provide students with access to multiple materials to guide them in structuring their papers. I have collaborated with staff to evaluate the sources in The Writing Center and online at IU Southeast and have noticed that specific writing skills are not addressed. My project focuses on producing handouts available online and in The Writing Center that explain common writing assignments not already encompassed such as literary analysis, critique, and summary. The handouts will include examples of elements needed in composing a successful piece that meets the requirements of the assignment. Making these handouts accessible online allows students to help themselves at any time or location. After surveying students of all levels and majors, I have concluded that many need help in comprehending their assignments and would benefit from these handouts. The creation of such handouts will provide quick assistance to students and take some of the strain off a busy writing center.

P57 – Taryn Hall (Southeast)

“An Examination of the Pilot Semester of IU Southeast’s Writing Fellows Program”

The purpose of this project is to examine the successes, limitations, and overall impressions of the pilot semester of IU Southeast’s Writing Fellows Program. This program was initiated to ensure that students had access to quality feedback and assistance on their written work; its goals are to promote strong, college level writing and to promote retention within the university. I am one of the two Writing Fellows for the pilot semester and have worked to not only help define how the program should function at our university but also to gauge how successful the program has been in its first semester. I have surveyed the students of the two participant classes about their feelings toward writing, the program, and their Writing Fellows. I have also analyzed what, if any, measurable differences there have been to the students’ grades and writing abilities throughout this semester via charting the grades and feedback they have received from their professors. While my research is still ongoing, it suggests that the Writing Fellows Program can serve as a positive asset for not only improving the writing of college students, but also for promoting confidence in their abilities and their connection with the university if it is properly utilized by students.

P58 – Jeffrey Lingard (Southeast)

“How the Internet Can Change the Third World”

Access to the World Wide Web through the internet is a luxury that most in the Western World takes for granted; however, many people living in developing nations have never even seen a computer let alone know what a vast resource and amazing tool the internet can be. This study will look at cases from around the globe that highlight how simple access to the internet can enhance the lives of those living in the Third World. First, we will look what happens to the learning that can be accomplished when an internet kiosk is placed in the middle of a small Indian village. From there we will discover how the right information can spur a young man to find a way to not only bring electricity, but also water, to his drought suffering village in Africa. Finally, we will travel to Peru and witness how the internet can bring economic stability by opening up markets and opportunities to sell goods to a wider populace. Establishing internet access in these areas does not come without roadblocks and pitfalls, so we will conclude with a discussion on how to overcome some of these barriers and prevent misuse.

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P59 – Mallory Sawdy (Southeast)

“Promoting Professional Writing Skills Within the Community: Using the University as the Vessel for Community Engagement”

The purpose of this project is to engage the IU Southeast Writing Center with the surrounding community. The project will work with local public libraries and IU Southeast to create a program that will promote better professional writing skills amongst members of the community. Many members in the community do not have the resources or time to attend a university. However, they are in need of professional writing skills that will enable them to find a job. The first phase of the project involves collaborating with IU Southeast's grant writer and Career Development Center to establish a basis for funding of the project. The next phase of the project is to work with local public libraries to engage their interest in the project. The final phase of the project is to set up the program in collaboration with IU Southeast and local libraries to promote and staff the professional writing skills workshop. This project will result in the creation of a new vocational writing workshop program that is sponsored by IU Southeast and local libraries. This project should last for many years, and will spark a relationship between IU Southeast and the community of Southern Indiana. With the collaboration from the IU Southeast's Writing Center, this project will engage members of the community to become better and more efficient writers.

P60 – Abigail Woodward (Southeast)

“Creating a Universal Writing Center”

This research project was focused on constructing a general layout for all diverse students to utilize, the functionality, and the universal accessibility of a writing center. The data gathered for this project was predominantly through interviews. A few examples include, a Board Certified Behavior Analysis (BCBA), The Coordinator of Disabilities at IU Southeast, and Directors of local writing centers. These interviews were specifically selected because they provide an overall diverse understanding of what accommodations different types of students may require. The end result of the interviews showed that a writing center can become a more universal space with the appropriate layout. An appropriate layout for a writing center can be achieved by having an open floor plan, but also able to have its own individual space away from other learning institutions. A designing website was used to create four sample floor plans of a universal writing center to show how an open floor plan can be attained in many different room layouts. Which showed that not every writing center should be identical. Also the research showed that having a writing center director that is able to be full-time and productive in the writing center is important for all students. Which allows students who frequent the writing center and those who work in the writing center to have access and contact with the director. Overall a universal writing center will be an inclusive contribution for the education system because it creates a learning environment for all to use.

P61 – Paula Eddleman (Southeast)

“A Pilot Study: The Effects of Social Exclusion on Aggression”

Humans are profoundly social. Chronic social exclusion produces a variety of negative effects ranging from impaired health to shorter life spans. Acute social exclusion reduces positive affect and increases negative affect while having complex effects on aggression. Cyberball is a widely accepted experimental manipulation used to induce feelings of social exclusion. However, while standard Cyberball reduces positive affect, it does not increase negative affect and does not produce a cortisol response. Additionally, Cyberball-induced exclusion does not convincingly reduce unprovoked aggression in a competitive reaction time (CRT) task. To improve the exclusion model, a physiological stressor was added concurrently to Cyberball to increase negative affect, increase cortisol, and reduce unprovoked aggression. Positive and negative affect were measured using PANAS. The CRT task was used to measure unprovoked and on-going reactive aggression. We predicted that the excluded group would initially be less aggressive and become increasingly aggressive over time. Whereas the inverse responses were expected in the inclusion group. As expected, the excluded group displayed lower levels of unprovoked aggression in comparison to included groups. Over continuing CRT trials, included participants became decreasingly aggressive whereas excluded participants became more aggressive. Decreased levels of unprovoked aggression in the excluded group were interpreted to mean that the excluded group were attempting to reestablish social inclusion. Negative affect was elevated in the excluded compared to the included group. Taken together, decreased unprovoked aggression and increased negative affect in the excluded group provides support for the new model.

P62 – Faron Goodrow (Southeast)

“Emotions, Happiness, and Personality”

The purpose of this study is to examine the relationship of emotional intelligence on different personality traits, such as extraversion, and the effects of emotional intelligence on happier lifestyles. Few studies have investigated the link between these different variables to one another. Current research is typically limited to the combination of only two of the three variables, but this study will incorporate all three. Data will be collected using standardized scales for each variable. Emotional Intelligence will be assessed through the Toronto Alexithymia Scale. Happiness, or Life Satisfaction, will be measured through the Oxford Happiness Scale. Extraversion will be measured through the McCroskey Introversiion Scale. Participants will be recruited online through a participant pool and canvas course sites. We hypothesize that extroverts in our subject pool will report having happier lifestyles than introverts and that extroverts and individuals who are happier will have higher emotional intelligence.

P63 – Skylar Guernsey (Southeast)

“Are you hungry?”

Previous studies have found that there is a relationship between stress and eating habits. This study is looking at the relationship between stress and eating habits by measuring levels of stress, origins of stress, amount of food consumed, and quality of the food consumed. The researchers will assess 100 individuals on origins of their stress, levels of stress, amount of food consumed, and quality of food consumed. The two expected results of the survey are that when people experience more stress they will consume larger amounts of food than normal, and that when people experience more stress they will consume smaller amounts of food than normal. The researchers hypothesize for the society that our mental health and perceived stress impacts our eating habits and physical health in a negative way.

Session III Poster Presenters

1:20pm – 2:20pm

P64 – Robert Johnson (Southeast)

“Gender Differences of College Aged Individuals in Relation to Stress Coping Strategies”

College life can be stressful for everyone but being able to cope accordingly is a sign of personal maturity that influences overall happiness and hopefully leads to a successful college experience. This study chose to investigate the potential differences between genders to see if there were predispositions toward one stress coping strategy as opposed to another for either males or females. Participants were recruited to complete a survey detailing their levels of stress and their tendency to engage in particular behaviors in response to stress. A 25 item questionnaire was constructed to measure how individuals chose to deal with stress during a typical week in a four factor variable design looking at social openness and engagement, private leisure activities, intrinsically motivated exercise and alcohol use. We expect to see significant differences overall among factors such as social openness, social engagement and the frequency of private leisure time activities. Our study chose not to hypothesize a significant difference between genders in respect to frequency and magnitude of either alcohol use or intrinsically motivated exercise. Instead we remain open to any possible differences that indicate a willingness to engage in either healthy or unhealthy coping patterns. These results hope to be applicable in school initiatives and social programs aimed at decreasing college students stress by engaging in more productive activities.

P65 – Lindsay Johnson (Southeast)

“Social Anxiety and Its Effect on Online Relationships”

Social Anxiety is a disorder that effects people of any age or origin, along with the increase of social interaction on the Internet. It is curious to see if they are related to each other. The purpose of this study was to see how this disorder effects differences in how individuals interact with their friends online or face-to-face. Social anxiety was assessed by questions from a revised Social Phobia Inventory, Liebowitz Social Anxiety Scale, and UCLA Loneliness Scale. The questions were reworded to differentiate between in person and online. The questions were situation based to see which made them more anxious. Facebook was chosen because it is the biggest social media website used for communication. It is hypothesized that there will be a positive effect on social anxiety when the participants talked to their friends online. Social anxiety is expected to be decreased when they were online rather than when talking to their friends face-to-face because it was less stressful. This could be why more and more people are turning to the Internet and social media for social interaction instead of talking on the phone or going out in person.

P66 – Breanna Gordon (Bloomington)

“Effects of Friendship Networks and Incentive Goals in Interracial Interactions”

Although the United States is becoming more diverse and intergroup interactions are increasing interracial friendships remain rare. The purpose of this study is to identify factors that minimize negative meta-perceptions and facilitate smoother, more amicable interracial interactions. Specifically, effects of friendship networks and incentive goals on meta-perceptions are examined. Previous research has shown that learning goals (i.e., the desire to learn about another individual) in place of performance goals (i.e., the desire to appear likeable) may ease social identity threat. Additionally, diverse friendship networks signal safety when one's in group is represented. This study focuses on whether diversity will or still signal safety when White participants (n=99) anticipate an interaction with a partner who has a non-representative, diverse friendship network. Results reveal that when one's racial group is not represented in an interaction partner's otherwise diverse friendship network, it may signal identity threat, especially when participants adopt a performance goal as opposed to a learning goal. Implications for future research are discussed.

P67 – Brandon Million (IUPUC)

“Social Rejection and Ostracism within the Gay Community”

In society in general, the gay community is a marginalized group, prompting one to think it would be an open and supporting group for members within the community. Our data suggest that is not always the case. In this project, we examined social rejection and ostracism within the gay and bisexual male community. We asked the questions: Is there ostracism or social rejection in the gay/bisexual male community, and to what extent? Through surveys and observational methods, we describe essential information about ostracism within a small, marginalized community. Results show that gay and bisexual men do experience social rejection and ostracism from others in their community. Out of survey respondents, 25.7% have been told they do not belong in the gay community, and 71.4% of respondents felt as though they did not belong in the community. More than half of respondents dread interacting with other gay in men in public spaces and feel self-conscious in gay friendly spaces. Surprisingly 74.3% of respondents feel that they are more than “somewhat judged” in gay friendly spaces. We conclude that there are undeniable instances and high levels of social rejection and ostracism in the community. Observations demonstrated a noticeable amount of entitlement amongst highly physically attractive men in the community. With lack of research focusing on ostracism and social rejection within the gay and bisexual male community, this research project can serve as a start for a deeper understanding of rejection within a marginalized group.

P68 – Hailee Riney (Southeast)

“Difficulties in Dating Relationships”

Behaviors that occur within relationships during times of conflict are investigated in this study. An estimated 1.6 to 2 million women are the targets of domestic violence in the United States each year. In 2012 alone, there were 800,000 male victims of domestic violence. Brooks and Riney are looking into which category of abuse from the power and control wheel is most common in dating relationships in couples over the age of eighteen. All questions in the conflict questionnaire have been created by the authors based on the information from the power and control wheel. The power and control wheel breaks abusive behaviors into eight categories (emotional, physical, privilege, financial, sexual, using children, intimidation and isolation). We are predicting that emotional abuse is the most common form of abuse in intimate relationships. This study will also investigate difference in behaviors due to age, gender and ethnicity of the participants.

Session III Poster Presenters

1:20pm – 2:20pm

P69 – Adam Schwartz (Southeast)

“A Pilot Study: Salivary Cortisol Concentrations Following Cyberball and Cold-Pressor”

Belongingness is a psychological need which is satisfied by friendships, intimate relationships, and inclusion in social groups. Failure to satisfy this need may cause: loneliness, anxiety, anger, depression or suicidal ideation. To experimentally manipulate feelings of inclusion or exclusion, a digital ball tossing game called Cyberball is often used. Cortisol, a hormone released when stressed or excluded, has not been significantly elevated in Cyberball studies, even though participants self-reported that they felt excluded. We suspect that Cyberball by itself does not elicit a strong enough emotional response to activate the HPA Axis and release cortisol. To amplify the emotional valence to the point of a cortisol response, we submerged participants' hands into ice water up to three minutes while they played Cyberball. There was no increase in the included group, however a slight increase was observed in the excluded group. This data is promising but not significant because of the sample size of the participant's salivary cortisol data (6 included, 6 excluded). More data is required for significance, but if the trend continues, this could reliably show that we can manipulate social exclusion to the point of a cortisol response. Once we verify the significance, our results will help the field regarding social exclusion by showing that you can experimentally manipulate a subject into feeling genuinely excluded. The ability to make someone feel genuinely excluded allows researchers to measure all the relevant systems involved in social exclusion.

P70 – Jessica Glaab (Southeast)

“Gender Differences in Romantic Partner Preferences”

This study investigates gender differences, or a lack of, in what traits each gender prefers in an ideal romantic partner. Psychologists have devoted a considerable amount of time studying gender differences in traits desired in a romantic partner. Most of the studies on partner preference, however, have been conducted with samples of people from all ages and educational levels. The aims of the current study were to focus on the college student pool and investigate the gender differences in preferences for particular traits and characteristics of an ideal romantic partner. A sample of 50 men and 50 women (age 18-25) will be completing a questionnaire where they were asked to think of their ideal romantic partner and then to rate a list of statements/characteristics on their level of importance. Some of the characteristics that were looked at were physical attractiveness, religious views, sense of humor, and honesty. I hypothesize that males more than females will rate physical appearance (attractiveness) as more important than intelligence or social status. I also hypothesize that the results of this study will show that females rate traits such as honesty and good financial prospects as highly important. These results should expand upon previous findings by accounting for the views of college students on what they deem are the most important traits in an ideal romantic partner.

P71 – Kassadye Hook (Kokomo)

“Evidence of Inclusion on College and University Websites”

The number of students with disabilities continues to rise within college and university populations. Therefore, campuses have aimed to present a welcoming campus of inclusion, with adequate resources. Evidence of an inclusive environment could positively influence a student's sense of belongingness and their desire to attend that campus. For many prospective students, the campus website will be the first resource used to assess the campus climate regarding disabilities (learning, psychological, and physical). The present study assessed the websites of 16 Indiana colleges and universities, and measured their evidence of providing an inclusive environment for students with a range of disabilities. A coding manual was created with a list of potential accommodations, supports, and resources provided on each campus. Three researchers were trained to individually search and code each campus website to assess evidence of inclusion in four different areas; 1) Academic Accommodations; 2) Human Support; 3) Physical Support; and 4) Organizational Support. Schools were rated on a 5-point scale ranging from 1 = inadequate evidence of inclusion to 5 = exceptional evidence of inclusion. For overall level of inclusion only 56% of the schools scored at adequate or above. Across campuses, the strongest evidence was provided for Human Support and the weakest evidence provided for Physical Support. While the actual services and supports provided on campuses may be plentiful, this is likely not evident to prospective students due to the limited number of resources provided online. Therefore, efforts should be made to increase service and resource visibility on campus websites.

72 – Kaylee Tutrow (Kokomo)

“Examining the Relationship between Self-Distancing and Prosocial Behavior”

People who believe that empathy is changeable score higher on self-reported empathy, are more willing to engage in effortful empathic responses, and to help cancer patients. However, there is limited prior research on implications of the malleability of empathy. Thus, the purpose of this study is to expand such work.

Participants (N=816; M age = 28.15; 72.8% female; 84.9% Caucasian) completed an online study that included the 17-item self-reported altruism scale ($\alpha=.82$) and a scale we developed measuring beliefs about the changeability of empathy ($\alpha=.92$).

As per previous research, participants who believed that empathy was more changeable scored higher in empathic concern, $r(813)=.18$, $p<.001$, and perspective taking, $r(813)=.15$, $p<.001$, but lower in personal distress, $r(813)=-.08$, $p=.027$. In addition, participants who believed that empathy was more changeable reported higher prosocial behavior overall, $r(814)=.081$, $p=.021$, especially toward strangers, $r(814)=.09$, $p=.010$, rather than towards close others, $r(814)=.05$, $p=.166$.

We expand on previous research by examining helping towards different types of people. However, the small effect sizes suggest there may be important moderators of these effects, which will be explored in our poster. In addition, with correlational data we cannot determine the direction of causality or the influence of potential confounds. Future research should use experimental methods to examine whether believing that empathy is changeable (versus stable) actually causes increased prosocial behavior.

P73 – Elizabeth Schad (Southeast)

“Does Level of Education Predict Implicit Bias in a Simulated Police-Shooting Task?”

In this experiment, we investigated if educational level predicts implicit bias in a simulated police shooting scenario. Implicit bias is characterized as a preference for one group of which the participant may not be consciously aware. We asked participants to play the Police Officers Dilemma, a simulated police-shooter scenario. In the task, participants must rapidly decide to shoot suspects with guns, or not shoot those without guns. In the game, half of the suspects are white and half are black. The same suspects are shown in a variety of environments and are either armed or unarmed. We predicted that educational level would not predict differences in shooting unarmed suspects on the basis of race.

Session III Poster Presenters

1:20pm – 2:20pm

P74 – Alexis Alexander (Southeast)

“Stress and Creative Arts”

The purpose of this study is to find out if certain majors have less perceived stress than other academic majors. The same methods used in expressive arts therapy are also seen when learning creative arts at the university level; therefore, it is possible that arts majors can absorb these positive benefits in their arts classes. We predict that creative arts students are likely to have less perceived stress than other majors. This study consists of 150 university students from various majors participating in an online survey about coping with stress and stressful life events. Our results will be interpreted and discussed. This is an important contribution to the study of college majors and stress.

P75 – Andrew Fredrickson (Southeast)

“Born to Rock: The Relationship Between Music Preference, Birth Order, and Personality”

The purpose of our study is to test whether music preference or birth order will have a greater impact on personality. We implemented two surveys and collected general demographic information for testing. One survey being used is the Short Test of Music Preference Revised, which categorized music preference into these five factors: Mellow, Unpretentious, Sophisticated, Intense, and Contemporary. The second survey is the International Personality Item Pool, which is a five factor personality survey measuring: Openness, Conscientiousness, Agreeableness, Extraversion, and Neuroticism. We found that both surveys were comprehensive and proved to be valuable measuring tools that collected accurate information that was conducive to our study. In order to analyze the data we collected, we implemented a two way Anova to get our results. Results will be presented.

P76 – Taylor Fedders (Southeast)

“Does Propensity for Risk-Taking Predict Shoot-No Shoot Decisions in the Police Officers Dilemma Task?”

Police-involved shootings are a common feature of American life. In this experiment, we investigate the role that an individual's propensity for engaging in risk-taking might impact the choice to shoot or not to shoot. Risk-taking propensity is the extent to which an individual is willing to take chances in gaining a desired outcome balanced against the potential for harm or loss. To measure risk-taking propensity, we asked participants to play the Balloon Analog Task (BART). In the BART, the individual inflates a balloon as much as possible without it exploding. Then the participants played the Police Officer's Dilemma, a simulated police-shooter scenario. In the task, participants must rapidly decide to shoot suspects with guns, or not shoot those without guns. We predicted that higher risk-taking scores would predict greater shooting errors.

P77 – Izzy Nolan (Southeast)

“Negative Parasocial Relationships and Anxiety”

Parasocial relationships (PSRs) are defined as the one-sided relationship that individuals develop with a celebrity or fictional character. Past research PSRs fails to assess negative attitudes towards a self-identified target celebrity. For example, the Celebrity Attitude Scale (CAS) only assesses positive attitudes. The current study investigates negative attitudes towards celebrities through a 68-question survey using the newly-developed Negative Attitude Scale (NAS) and compares these with the CAS. A third variable, anxiety, is included for comparison because of its correlation with the CAS and these seven questions are used to test construct validity for the NAS. It is predicted that high anxiety scores would correlate with both the CAS and NAS. Results from this study and implications of findings will be discussed.

P78 – Emma Bays (Southeast)

“Does Neuroticism Predict Shooting Errors in a Simulated Police-Shooting Task?”

Neuroticism, is widely accepted as a personality trait with considerable impact on a range of behaviors. Individuals high in neuroticism tend to experience higher than average anxiety, anger, and depressed mood. They are more likely to interpret ambiguous situations as being dangerous or threatening. Evidence also suggests that individuals high in neuroticism have difficulty inhibiting impulses. In this study, participants were administered the Ten Point Personality Inventory and the played the Police Officer's Dilemma, a simulated police-shooter scenario. In the task, participants must rapidly decide to shoot suspects with guns, or not shoot those without guns. We predicted that higher neuroticism scores would predict higher shooting errors.

P79 – Elleah Tooker (South Bend)

“Attitudes Towards Morality”

The purpose of this research was to identify the relationship between people's definition of morality and their likelihood to identify as a conservative or liberal within the United States political party system. The moral foundations theory argues that an individual's morality can be broken down into five categories: care/harm, fairness, ingroup loyalty, deference to authority, and sanctity/degradation. The current research investigates whether or not people's moral judgments are consistently aligned with these five values and whether or not those values can align with a particular tendency to identify with a political party. The first phase of this research involved a survey in which participants answer a series of questions on a likert scale model that address these categories of morality. Data collection is currently in progress and it is hypothesized that those categories of morality do indeed showcase a leaning towards a particular political party preference. This research will shed more light on how people's sense of morality can influence their likelihood to support a particular political party. This in turn can help the political parties shape their agenda to fit the needs of their supporters.

P80 – Christian Nelson-Bass (Southeast)

“Color and Memory: Understanding factors in visual processing”

Little research has been done to fully explain how visual processing of different features affect and help keep things in working memory. Research on scene saliency and what draws a person's eye to something has found that color is a factor of attentional bias and visual processing. Research also shows that color has a strong connection with emotional feelings, even sometimes subconsciously. This study is to test whether color plays any part in the brain's encoding methods and low-level processing. It is to determine how color affects visual processing and whether the connection is strong enough to help encode specially colored words into working memory first. It is also to determine if visual learners have a better ability to remember things when special features are involved. Students from IUS will complete three separate word memory and recall call tests to test this hypothesis. The second and third tests contain either blue or red text words at random to determine if participants recalled these words more often than regular black text. If color is an encoding method this information could be used as a method to improve student retention of information and product advertisement.

Session III Poster Presenters

1:20pm – 2:20pm

P81 – Katelyn Ragsdale (Southeast)

“The Art of Looking”

The intent of this study is to see if the viewing of artworks elicits a positive emotional response within the viewer, and if the viewing of artworks can serve as a means to boost mood. Participants within the study will complete four questionnaires, which be used to measure the participant's mood states—such as happy, sad, calm, etc.—prior to, and post the participants rating their opinion of how visually appealing they find of a select number of artworks. Each artwork will be followed by a question asking the participant to rate their overall mood state after viewing the work. Participants will also have the option to complete an open response question, where participants are encouraged to comment upon any aspect of the survey. The expected results of this study is an improvement in the participants' mood after viewing the artworks, with a significant correlation between the perceived aesthetic value attributed to the work and the participant's mood. This study and its findings will be beneficial to both the psychology and art communities, as it is expected to show a positive correlation between the viewing of artworks and mood.



INDIANA UNIVERSITY

ORAL ABSTRACTS A-B

9:15am – 10:15am

O1 – Alexis Brown (IUPUI)

“The Effects of Community Satisfaction on Trust in Government”

The civic literacy of native-born Americans routinely illustrates gaps in civic education. This deficit is particularly visible when it comes to correctly answering questions about the legal and political framework of the American constitutional republic, including elementary facts related to current political affairs and essential political policymakers. Without knowledge of how to effect change in government, it is extremely difficult to do so. This study aims to connect the reasons behind why youth ages 16-18 increasingly choose to abstain from the democratic process, failing to contribute to the social welfare of their respective communities through the channels of government. A sample of students at Arsenal Technical High School were interviewed in groups of two or individually. Each interview began with five questions from a sample U.S. Citizenship and Immigration Services Naturalization Test in order to estimate the students' level of civic literacy. Following the USCIS test, students were asked a series of questions to gauge their civic engagement and the amount of credibility they perceive in the government. Students who scored higher on the ISCIS were more likely to report dissatisfaction with the current state of their Indianapolis neighborhoods. The efforts of this study led to greater questions. Further research will see the initial responses of Arsenal Technical High School students compared to that of students who attend high school in suburban neighborhoods. An evaluation is anticipated show a correlation between increased neighborhood affluence and faith in government action.

O2 - Simon Willard (Bloomington)

“The Poor Get Poorer...Or Do they?”

A commonly shared belief within society is the rich get richer while the poor get poorer. The purpose of this research is to expand upon the work done by W. Michael Cox and Richard Alm in the article “By Our Own Bootstraps” which addressed this assertion. Data collected from the Panel Survey on Income Dynamics hosted by the University of Michigan is used to examine income growth rates from 1993 to 2013 across quintiles of income earners while accounting for age and educational attainment of income earners. Initial analysis of income growth rates indicates the poor became richer over this twenty-year time period and at a faster rate than the rich became richer over the same time period. The prevalent claim of “the rich get richer and the poor get poorer” serves as a basis for political ideology and policy creation. This claim, however, is an inaccurate assessment

O3 – Monique Johnson (IUPUI)

“The Eldercare of African-Americans in the Nineteenth Century”

This project studies the role of philanthropy, and the standard of care, of African American elders in old age homes in the mid nineteenth and early twentieth centuries. This project is comprised of two phases: 1. a review of historiography to assess the knowledge regarding the Homes; and 2. an investigation into case histories to examine the role of philanthropy and the standards of care concerning these establishments. Historiography included the study of primary and secondary resources. The primary sources are annual reports of the old age homes. Because of racial discrimination, blacks were unable to use publicly, and privately, funded almshouses and old-age homes established for their white counterparts. To provide for their venerable kindred, African-American churches, mutual aid societies and women's clubs founded and funded old age homes. The Home for Infirm and Aged Colored Persons was opened in 1865 in Philadelphia, Pennsylvania. The residents of the home were elderly, and ill, African-American women. The annual reports include a summation of both monetary, and in-kind, donations to the home. The Home provides glimpses of resident's everyday life, and of the benefits gained by living in the Home. The residents seemed to enjoy a sense of camaraderie, or family, as residents with income chose to live in the Home. There seems to be a gap in the knowledge regarding the voice of the residents. In the future, more research should be done on the resident's quality of life.

O4 - Ayobami Egunyomi (IUPUI)

“Economic Impacts of Mass Incarceration on African American Families”

Mass incarceration refers to the high and growing rate of imprisonment amongst a particular population of people. The problem of mass incarceration is common among African Americans and has greatly affected their economic position and wealth accumulation over time. In light of this, the main objective of this study is to identify the economic impacts of mass incarceration on the families of the incarcerated. This research explores these impacts from two major perspectives: the direct impact on the family and children of the incarcerated and the impact on the incarcerated vis-à-vis the labor and education market. The primary method of research was through analyzing federal and state statistical information while referring to scholarly articles and literature. This study aims at fully assessing the economic impact of mass incarceration and identifying the best practices to lessen the negative impact. The goal of this research is to influence subsequent decisions and policies of the key players in the American Criminal Justice System on issues concerning incarceration of African Americans.

O5 – Ayodamola Otun (IUPUI)

"Inflammatory Molecules and the Activation of the TRPV4 Channel in Choroid Plexus Cells"

Hydrocephalus is a condition that affects 1-2 in 1000 births. It is characterized by the over production of cerebrospinal fluid (CSF). In extreme cases, the brain tissue is pushed against the skull causing irreversible damage. The most common treatment is the insertion of a shunt system that directs the flow of CSF to regions of the body where it can be drained. The shunts are very expensive and require constant maintenance due to infections or malfunctions such as over draining which can lead to collapse of the ventricles and damage to blood vessels further complicating the condition. This emphasizes the importance of an alternate treatment that non-surgically invasive such as drugs. Our laboratory is studying the role TRPV4, a calcium channel, plays in the development of hydrocephalus. TRPV4 is found in the choroid plexus, the part of the brain that produces the CSF. It is hypothesized that activation of TRPV4 channels initiates a signaling pathway that ultimately leads to the opening of calcium-gated channels and the flow of ions and, secondarily, fluid into the CSF causing an increase in the volume of the CSF. It is important to note that hydrocephalus is characterized by an inflammatory response due to atrophy of the brain tissue from the pressure build up in the ventricles. It is therefore, reasonable to study the role of inflammatory molecules on the activation of the TRPV4 channels. Consequently, a study is being conducted to observe the effects of inflammatory mediators such as lysophosphatidic acid and arachidonic acid on the activation of TRPV4 in a porcine choroid plexus cell line. This is innovative because it explores a possible alternative drug target to treat hydrocephalus. It also studies the condition from a different perspective: using an inflammation point of view compared to an ion-transport point of view.

O6 – Nicole Lindsay (IUPUI)

"Effect of Tobacco components on *S.mutans* and *P.aeruginosa* biofilm formation"

Smoking and chewing tobacco result in significant health consequences, including suppression of the immune system, birth defects in children, lung disease, several different cancers, and even increasing the risk factor for dental caries. Although approximately 4,000 chemicals have been identified in tobacco smoke, it is unclear how these chemicals lead to the health effects seen. We have previously found that tobacco smoke enhances the ability of oral bacteria (such as *Streptococcus mutans*) to form into tenacious multicellular communities called biofilms, and there is evidence that smoke also enhances biofilm formation of lung pathogens like *Pseudomonas aeruginosa*. Thus, our goal of this study was to identify individual tobacco smoke components that enhanced *S. mutans* and *P. aeruginosa* biofilm formation. We tested for the minimum inhibitory concentration (MIC), minimum bactericidal concentration (MBC), minimum biofilm inhibitory concentration (MBIC), and planktonic cell growth with tobacco chemicals acenaphthylene, acrylonitrile, ammonium hydroxide, anabasine, anthracene, cotinine, methanol, naphthalene, nornicotine, N'-nitrosoanatabine, phenol-chloroform-isoamyl alcohol, and pyrrolidine. We found that trends for each chemical were fairly consistent, with biofilm growth increasing up to a specific concentration, and then drastically decreasing. These concentrations varied among each of the chemicals tested. Our results suggest that these chemicals exert biofilm inhibitory and enhancing effects on biofilm formation, depending on the concentration. These results further our understanding of how the components in cigarette smoke affect biofilm formation, which will provide medical insight into how to alleviate the health consequences of smoking or chewing tobacco.

O7 – Jared Thomas (IUPUI)

"Skeletal Abnormalities Exhibit Sexual Dimorphism in Down Syndrome Mice"

Down syndrome (DS), caused by the triplication of human chromosome 21 (Hsa21), is characterized by a wide spectrum of phenotypes including skeletal abnormalities. The Ts65Dn DS mouse model exhibits similar skeletal phenotypes as humans with DS. Ts65Dn mice are the most commonly used models to study phenotypes associated with DS and have about half the orthologs on chromosome 16 (Mmu16) that are syntenic to Hsa21. A more complete trisomic mouse model for DS, Dp1Tyb, was developed using Cre-loxP methodology that has all of the orthologs on Mmu16 syntenic to Hsa21. Dp1Tyb phenotypes may be more similar to humans with DS because they have more similar genes at dosage imbalance. Due to the subfertile nature of Ts65Dn male mice, previous skeletal studies do not include female mice, because these female mice were used to maintain the colony. We will be able to use male and female Dp1Tyb mice to examine bone phenotypes and investigate if the skeletal deficits exhibit sexual dimorphism due to trisomy at 6 and 16 week of age.

O8 – Dania Aqeel (IUPUI)

"Kinesio Tape for Pain Reduction: More than a Placebo Effect?"

Physical therapist, athletic trainers, chiropractors and many other professionals have used Kinesio tape to help alleviate pain symptoms. Currently, no clear reason exists as to why pain is relieved with the use of Kinesio tape and whether the analgesic effect is simply a placebo effect. Additionally, the most effective taping parameters (i.e., tension of tape) for pain reduction remain unknown. The purpose of this study is to determine if Kinesio tape applied at various tensions is effective in reducing pressure pain sensitivity compared to a placebo condition and no tape. Six healthy adults have completed this study and enrollment is ongoing. Participants completed four sessions. In each session, participants had pressure pain thresholds (PPT) assessed on their right forearm without Kinesio tape (pretest). Five minutes after PPT testing, a certified athletic trainer placed tape on the right forearm that had one of the following tensions: 0% (placebo), 25%, 75%, or no tape at all. After another five minutes, PPTs were assessed again on the right forearm while the tape was in place (posttest). Analysis of data was obtained by using paired t-tests to compare the pretest PPTs to posttest PPTs. The results showed that under the highest tension condition (75%), the PPTs increased ($p=0.045$) from pre (pretest= 531.2 ± 197 KPA) to posttest (posttest= 602.8 ± 230 KPA). No significant differences were found in the other conditions. These results suggest that Kinesio tape's analgesic effect is not a placebo. Specifically, tape applied with high tension (75%) being the most effective for reducing pressure pain sensitivity.



INDIANA UNIVERSITY

ORAL ABSTRACTS C-E

11:00am – 12:00pm

O9 – Vickie Bunnell (Southeast)

"Is Mom and Dad's Perfectionism Killing True Love for the Next Generation?"

The author will investigate the association between Other-oriented perfectionism in parents and their adult children's intimate partner relationship satisfaction. In addition, this study examines whether the student of Other-oriented perfectionistic parents would score high on the three dimensions of the perfectionism scale. Surveys will be given to 100 undergraduate psychology students which consists of four different instruments. To measure the students' perception of their parents' perfectionistic attitudes and behaviors, the other-oriented dimension of the Multidimensional Perfectionism Scale (MPS) will be manipulated to create two sets of questions that reflect the participants' opinions of their mothers' and their fathers' attitudes and behaviors. To assess the students' level of perfectionism, the MPS including all three dimensions will be used. The Relationship Assessment Scale (RAS) will be used to measure the students' level of intimate partner relationship satisfaction. I expect to find that male and female students whose mothers score high on the Other-oriented perfectionism scale will score high on the MPS and low on the RAS whereas males and females whose fathers score high on the MPS will score high on the RAS. In addition, I expect to find a positive correlation between perfectionistic mothers and perfectionistic students as well as a negative correlation between perfectionistic fathers and perfectionistic students. This study adds to the research on the three dimensions of perfectionism and how parents' particular attitudes and behaviors could affect the success of their children's future intimate partner relationships.

O10 – Manuela Roa-Gonzalez (IUPUI)

"The Differential Influences of Hope and Optimism on Life Satisfaction and Perceived Stress"

Trait expectancies, such as hope (Snyder, 1994) and optimism (Scheier & Carver, 1985), have been associated with better academic performance and greater subjective well-being, even under adverse conditions (Snyder & Lopez, 2007). Although they share similarities, hope and optimism are not redundant constructs and differ in their ability to predict academic performance when studied together (Rand, 2009). The goal of this study was to examine the differential roles of hope and optimism in predicting changes in subjective well-being in undergraduates over the course of a semester. At the start of the semester, participants (N = 343) completed self-report measures of hope (Snyder et al., 1991), optimism (Scheier, Carver, & Bridges, 1994), perceived stress (Cohen et al., 1983), and life satisfaction (Diener, Emmons, Larsen, & Griffin, 1985). During the last week of the semester, they again completed self-report measures of perceived stress and life satisfaction. Path analyses showed that greater hope at Time 1 predicted greater life satisfaction ($\beta = .19, p < .01$) and less perceived stress ($\beta = -.12, p = .04$) at time two while controlling for baseline levels of subjective well-being. In contrast, greater optimism marginally predicted less perceived stress ($\beta = -.07$) and did not predict life satisfaction. These results support previous research showing that hope and optimism may influence well-being in different ways. Hope may be a stronger determinant of positive measures of subjective well-being; whereas, optimism may only influence negative measures.

O11 – Jenna Bieker (Southeast)

"Selfies and Perceived Narcissism"

With the invention of social media websites like Myspace, Facebook, and Instagram, the "selfie" has become a prominent method of putting one's face out into the world. Many celebrities have gotten on board with the posting of selfies because it allows them to better brand themselves as well as show an aspect of their lifestyle that most are not privy to witness otherwise. However, because the concept of the selfie is to photograph yourself, many have explored whether or not narcissism plays a role. This study differs from previous studies because we asked participants to view a variety of selfies and then rate each photo on the perceived narcissism level of the person in the photograph. Afterward, each participant was asked to answer items on the NPI-16, which is a short measure narcissism scale. We hypothesized that those participants who rated the selfie-takers as having higher levels of narcissism would score high on the NPI-16.

O12 – Michelle Ramirez (IUPUI)

"Identifying Cultural Influences that Determine Depression in Latino Adolescents: Latino Immigrants in U.S. vs. Latin Natives in Country of Origin"

Research shows that acculturation in Latino adolescents increases generationally; however there is a loss in depression-shedding protective factors embedded in Latino culture. High depression and suicide attempt rates among Latino adolescents in Indiana have been documented. A large Community-Based Participatory Research Study (CBPR) in Indiana identified predictors of depression in Latino male and female adolescents which included acculturative stress. An exploratory, qualitative study followed with 30-40 Latino teens ages 14-18 to delineate the influence of culture and stress impacting depression. Seventeen Latino adolescents living in the U.S. and a control group of eighteen Latino adolescents living in their country of origin (Colombia) were interviewed to contrast the experiences related to mental health for Latino adolescent immigrants and native Latinos. Immigrant Latino teens living in the U.S. reported stressors due to the parent imposition of traditional gender roles on them, struggles with cultural identity development, and difficulties with support networks and guidance in reaching their aspirations. The Colombian adolescents living in their country of origin reported experiencing traditional gender role burdens in the home and society and hardships in navigating societal barriers to accomplish their career ambitions. The results support the literature in that the high rates of depression in this population is attributed loss of their communitarian support system, the generational transmission of traditional gender roles, and a lack of opportunities to achieve future goals. These new insights of how culture and stress predict depression in Latino adolescents will provide further knowledge to the scientific community as well as inform the curriculum of the *Your Life. Your Story* Latino Youth Summit intervention designed to reduce depression in this population.

O13 – Kassandra Casper (Southeast)

"Exercise Habits and Relationship Satisfaction"

The purpose of this study is to determine if exercise is positively correlated with relationship satisfaction in dating and married couples. 100 participants, recruited via convenience sample, took a single questionnaire made up of Hendrick's Relationship Assessment scale (1988), the Godin Leisure-Time Exercise Scale (1997), and personally constructed questions. We predict that relationship satisfaction will be positively correlated with exercise. These results highlight the importance of considering exercise as a contributor to relationship satisfaction.

Oral Session D

11:00am – 12:00pm

O14 – Jesse Harvey (Southeast)

"Source Memory and Anxiety"

Relationships have been found between anxiety and various types of memory. One area that has received less attention in previous studies is source memory, memory for where information was learned or the context surrounding it. This study compared source memory performance between participants who received neutral instructions and participants who were anxious due to receiving ego threat instructions, instructions intended to make the participants nervous and self-conscious about their performance. We expected to find that participants who were anxious from ego threat instructions would perform more poorly than those in the neutral condition. The design used also provided an opportunity to investigate differences in basic memory recognition between the two groups. Results will be discussed and analyzed in light of the theory that anxiety produces negative thoughts and worries about performance that interfere with one's ability to complete the source memory task.

O15 – Nicole Hasenour (Southeast)

"Commuter vs. Residential College Students: Student Involvement"

The purpose of this study is to see the differences between commuter vs. residential college students and how that affects their student involvement. This research is to analyze whether or not commuting has an effect on involvement in school sponsored activities. Data was collected using an online survey with demographic questions about age, gender, commuting to school, living on campus, following questions about student involvement measured on a 5 point Likert scale. Our results are expected to show that students living on campus will be more involved in school sponsored activities. These findings will be useful to upcoming college students to determine the best living situation for them to get the most out of their college experience.

O16 – Hope Alexander (East)

"The Impact of Interest Groups on the Polarization of the United States Congress"

Polarization—the increasing divergence between parties and their ideology in the legislative branch—in the United States is undoubtedly on the rise. As a result, political scientists have turned their attention to both the causes and consequences of this phenomenon. To understand this dilemma, I have conducted a literature review and additional research via scholarly articles and books. In reviewing the existing literature, I seek to uncover why polarization exists in the United States, specifically in its national legislative bodies of the House of Representatives and the Senate. In general, scholars have argued that polarization is impacted by campaign contributions, including individual donors and interest groups. I argue that the primary cause of polarization in the United States Congress is the growing influence of interest groups.

O17 – Neal Clark (Southeast)

"Examining the Relationships between Social Capital, Social Comparison, Social Capital Maintenance Behaviors, and Emotional Intelligence in Facebook Users"

While the study of Facebook use and its social implications has grown in the past decade, few studies have investigated emotional intelligence in relation to the use of Facebook. The purpose of this study is to further understand the relationship between variables associated with Facebook use and emotional intelligence. Participants were recruited one of two methods: via an invitation posted on the researcher's Facebook page, or through the psychology subject participant pool, and were instructed to complete a survey consisting of six questionnaires. Participants provided information about Facebook use, social resources, inclination to comparison, and emotional intelligence. It is expected that there be a significant positive relationship between Facebook Relationship Maintenance Behaviors and social capital, and a positive relationship between Facebook use intensity and social capital. In addition, it is hypothesized that there will be a relationship between emotional intelligence and social media use. More specifically, it is expected that there will be a positive relationship between emotional intelligence and both Facebook use intensity and social capital. Due to the constraints placed on text based communication, it is predicted that users with greater social capital and users that use Facebook more intensely will score higher on emotional intelligence measures.

O18 – Jillian Coursin (Southeast)

"Understanding Alexithymia within Cultural Constructs"

The purpose of this research is to examine cultural impacts on levels of Alexithymia within college students in the United States and Kyrgyzstan. It is important to understand factors of emotional intelligence between different cultures and why the dissimilarities may occur. This study allowed for a comparison between cultures that identify as Individualistic and Collectivists. Twenty-five students from an American University and 39 students from a Kyrgyzstan University participated in this study by completing the Toronto Alexithymia Scale Questionnaire. The results were divided into subscale factors of Alexithymia (difficulty identifying emotions, difficulty describing emotions, and externally orientated thinking). Although no significant difference was found between difficulty describing emotions and externally orientated thinking, there was significant difference in difficulty identifying emotions. Variances found are discussed in relation to the difference of cultures.

Oral Session E
11:00am – 12:00pm

O19 – Laurentia Bivol (Northwest)

"Dido Elizabeth Belle"

Until recently little was known about Dido Elizabeth Belle, a mulatto girl who lived in the 18th Century. She was featured in a 18th Century painting that inspired a recently released book and movie that came out in 2013. A famous double portrait of Dido Elizabeth Belle and her half cousin Lady Elizabeth Murray depicts two elegant 18th century women at Kenwood House in London. The picture shows two wealthy women dressed in silk and pearls, and in the background one can see the Georgia Cityscape. There is nothing unusual about this painting except for the minor details of a person's mixed race. This piece of art depicts a young African lady pointing to her cheek, which draws the viewer's attention to her skin color. As such, admirers of this painted image may wonder about the identity of the mysterious women in the painting and seek to learn more about her. This painted illustration along with the new film and book did in fact reveal that there is a true story behind this representation. The mulatto woman in this work of art is name Dido Elizabeth. Therefore, this paper explores Dido Elizabeth's life and her influence in the 17th century.

O20 – Humaira Khan (Northwest)

"Children in The Atlantic Slave Trade"

The purpose of this research is to analyze the treatment children in The Atlantic Slave Trade. In many of the works that have been written thus far on the cruelty of the trade, one demographic has been vastly underrepresented: children. It is estimated that children composed 35% of the slave population and continued to hold importance in the slave trade until its abolition in 1807. This population of children was overworked, underfed and abused on the plantation, and, thus, was subject to high rates of mortality and developmental deficits throughout life. From the planter's perspective, the reasoning for forced African labor was that those from the African continent had the knowledge for cultivating sugar and were immune to traditional European diseases. However, slave children were still developing their immunity and had little knowledge of sugar cultivation. To analyze the hardships of these children in slavery, this presentation outlines the economic reasoning for their enslavement, their journey to the Americas, the jobs they held once they arrived to their destination, and the toll of plantation labor on these children's health.

O21 – Stephen Salisbury (South Bend)

"Why Won't You Stay: A Quantitative Sociological Analysis of Factors Influencing Retention at IU South Bend"

In a society where going to college increasingly is becoming a minimum educational requirement, colleges and universities are constantly looking for clues as to how to engage their students in such a way as to keep them attending and progressing steadily towards graduation. The following paper is the result of a survey I did on first-year, first-semester students at IU South Bend. The goal of the survey was to try to identify particular experiences students may have had that have a statistically significant correlative effect on their confidence that they will continue at the university beyond their first semester, their first year, and through to graduation. After assessing the recent literature on the topic, I decided to model my study after a survey done in Australia that focused on these types of experiences and their effect on retention. Using a Spearman rho correlation analysis, I was able to identify many common experiences that students reported as having either a positive or negative effect on their desire to continue at this institution. By considering the results of this analysis, educators and administrators may be able to determine where to focus their efforts in their attempts to increase both retention and graduation rates at this and in similar university settings.

O22 – Mikael Attebury (Southeast)

"Oil and Water: Creative Writing in The Writing Center"

We intend to implement an inter-departmental, student-oriented, creative writing organization, as an extension of The Writing Center. Our objective is to foster community among creative writers, supplement creative writing coursework with professor-led seminars, conduct peer review and editing sessions, and explore career options with the aid of IU Southeast's Career Development Center. We consulted academic literature regarding the theories of writing center instruction. We employ elements of expressivism and social constructionism; we operate, primarily, under social constructionism, as it allows us to consult students in a more personal, collaborative manner. We conducted practice consultations. We interviewed English and creative writing professors to gain a better understanding of creative writing pedagogy; we surveyed English and creative writing students to assess their instructional preferences. Through our studies in writing center theory, we concluded that social constructionism allowed the greatest amount of freedom to all parties, enabling the consultant to take a more active role in the writing and editing process. Using the practice consultations, we refined our techniques. We, through interviews with faculty and students, have discovered useful methods of writing group organization, subsistence, and growth, based on the needs and desires of both instructors and our peers. The goal is to establish a creative writing community to make better writers and pieces, and to expand the reach and influence of IU Southeast's Writing Center. We hope to share our findings so that writing centers may benefit from our research.

O23 – Aspen Kirchgessner (Southeast)

"The World and Writing Centers"

My proposed project helped add new ESL material to what already existed at The Writing Center. From interviewing writing consultants and professors of writing intensive courses, I came up with five main struggles that ESL students face, with handouts and worksheets became the result. The new materials were provided to The Writing Centers and professors of writing intensive courses at IU Southeast.



INDIANA UNIVERSITY

ORAL ABSTRACTS F-H

1:20pm – 2:20pm

Oral Session F
1:20pm – 2:20pm

O24 – Cameron Morris (IUPUI)

“Molecular Cascades and Potential Implications of the Spinophilin and SAPAP3 Interaction on Basal Ganglia Disorders”

Specific molecular footprints that reside within the striatum—the major input nuclei of the basal ganglia—occur in many neuronal disorders, however, understanding the molecular mechanisms regulating disease pathology remains of great interest. In striatal medium spiny neurons resides spinophilin, a protein phosphatase 1 targeting protein, which functions to directly decrease mGluR5 endocytosis. Interestingly, preliminary data demonstrates spinophilin interacts with SAP90/PSD95-associated protein 3 (SAPAP3). SAPAP3 has been associated with its ability to suppress mGluR5-driven AMPAR endocytosis and thereby alleviate obsessive-compulsive disorder (OCD)-like phenotypes. Here, a HEK293 cell line is used to investigate the molecular mechanisms regulating the formation of the spinophilin/SAPAP3/mGluR5 tripartite complex. Through the use of overexpression, proteomic, and pharmacological studies, it is shown that both spinophilin and SAPAP3 individually co-immunoprecipitate with mGluR5. Ongoing data shows spinophilin and SAPAP3 associations with mGluR5 are altered when all three proteins are overexpressed in a HEK293 cell system. Functional studies reveal SAPAP3 associates with amino acids 665-817 of spinophilin and that the structural/catalytic activity of protein kinase C significantly increases the association between SAPAP3 and full-length spinophilin. Collectively, the results regarding this novel protein interaction may provide implications in underlying disease pathology of OCD and provide unique therapeutic strategies.

O25 – Patricia Kamanda (Bloomington)

“Studies of the Oncometabolite L-2-Hydroxyglutarate”

The Warburg Effect or aerobic glycolysis is a metabolic program that cancer cells use to efficiently synthesize macromolecules. L-2-hydroxyglutarate (L-2HG) is an oncometabolite—cancer-causing metabolic molecule—that is generated by several cancer types. This molecule promotes tumor growth by inhibiting many enzymes required for metabolism, cell survival, and gene expression. The fruit fly *Drosophila melanogaster* has emerged as an excellent model for studying cancer metabolism. Not only do flies use aerobic glycolysis to support larval growth, but the activation of aerobic glycolysis coincides with the endogenous production of L-2HG. My goal of my research project was to determine whether L-2HG acts a nutritional signal in larvae. In order to test this hypothesis, I measured the starvation sensitivity of fly mutants with aberrant L-2HG metabolism. My studies revealed that L-2HG degradation is not required for survival during starvation and suggest that this compound serves another purpose in development and metabolism.

O26 – Lori Hayden (Southeast)

“Results of a short-term Bioblitz of the flora and fauna on Inyeug (Mystery Island), Vanuatu”

Indiana University Southeast researchers visited a small uninhabited island on 3 May 2016. A bioblitz consisting of direct observation and photography of species in 15 minute intervals at six land locations with an emphasis on birds, animals, and plants was conducted. Of the six land locations three locations are considered disturbed by humans and three locations are considered less disturbed. The island bioblitz was continued in the ocean at three locations with an emphasis on marine life including corals and fish. Preliminary results indicate that the less disturbed land locations have a higher diversity of species than the disturbed land locations. Preliminary data shows one bird identified, two spiders identified, three hermit crabs identified, three insects identified, ten plants identified, 21 fish identified, and seven corals identified. No other organisms have been reported from this island. A bioblitz is a record of what species are present at a location on a particular day in history and can be used by future researchers for comparative studies.

O27 – Tolulope Ajayi (IUPUI)

“Modeling Pancreatic Cancer Tumor Microenvironment Using a Microfluidic Culture System”

Pancreatic ductal adenocarcinoma (PDAC) is the third leading cause of cancer-related deaths in the United States, with an overall five-year survival rate of 8%. This is partly due to the lack of effective models that simulate the complex PDAC tumor microenvironment and allow for high throughput drug screening. Some of the key features of the PDAC tumor microenvironment are the presence of a dense stroma that impedes effective drug delivery to the pancreatic cancer cells (PCCs), as well as the presence of cancer associated fibroblasts (CAFs) that have been shown to modulate disease progression. The objective of this project is to develop an in vitro microfluidic cell culture system that allows researchers to recapitulate the PDAC tumor environment. The system, Tumor-Microenvironment-on-Chip (T-MOC) is manufactured using a replica molding technique. The chip consists of two polydimethylsiloxane (PDMS) layers separated by a porous membrane for gas exchange. This device forms an enclosed transparent device with input channel for cell entry and inner channels that mimic fluidic transport found in vivo. To analyze the potential of the device to simulate in vivo conditions, PCCs (GFP+) and CAFs (RFP+) were co-cultured with collagen and inserted into the device. Initial data analysis indicates that the device supports the growth of PCCs and allows formation of 3D tumor spheroids. In addition, analysis of GFP and RFP intensity demonstrated the effect of CAFs on PCCs growth, which diminished PCCs growth. These findings provide evidence that the microfluidic device can be used to replicate tumor environment allowing for future studies to screen potential drug candidates prior to conducting time-consuming and expensive in vivo studies.

O28 – Amandeep Kaur (Northwest)

“The Investigation of Me31B Protein in Germ Cell Formation”

Germ cells are a special type of cells that give rise to eggs and sperm. They are imperative for the generation of offspring in animals like humans. Germ cell formation depends on germ granules, granular particles that are composed of large assemblies of RNA and proteins. Me31B protein, a putative RNA helicase, is a protein component of germ granules, and is crucial for the development of germ cells in *Drosophila melanogaster* (fruit fly). We hypothesize that the interactions between Me31B and other components in the germ granules are important to the assembly and function of germ granules. To investigate such interactions, two experiments were conducted. In the first experiment, Me31B protein was purified from fly ovarian tissue and analyzed for its posttranslational modification status by using mass spectrometer. We found that Me31B protein contains symmetrically dimethylated arginines (SDMAs), which mediate the direct binding between Me31B and Tudor (a protein that acts as scaffold in germ granule assembly). In the second experiment, we performed immunohistochemical analysis on Me31B protein localization. The results showed that Me31B co-localizes with both Tudor and Vasa (a protein that acts on the upstream of germ granule assembly). Our data support our hypothesis by showing that Me31B interacts with Tudor and Vasa proteins in the germ granules. The interactions could play important roles in the assembly and function of germ granules and the subsequent germ cell formation.

Oral Session G

1:20pm – 2:20pm

O29 – Adam Buss (Northwest)

“Construction of generalized integral formulas by means of Laplace transforms”

We present a method for the construction of integral identities that contain an undetermined function. Except for mild restrictions, this function can be chosen arbitrarily. Our method is illustrated by several examples leading to new integral identities.

O30 – John Adebayo (Bloomington)

“Neuronal Electrical output and Radiation Bombardment effects on Neuroplasticity”

While there have been studies that shows the effect of radiation to the brain, most have been for the goal of examining the long term effect on the human body rather than physiological process of the neuron activity in the brain. No studies have explained the connectivity kinematics of neurons before and after radiation exposure. By recognizing and understanding neuron connectivity and spike levels before and after radiation, diligent presentation of solutions could potentially be formulated to prevent or even cure present diseases or conditions from Parkinson Disease to Alzheimer. In this current project, we examine, the connectivity and communication among neurons before and after the advent of radiation exposure. The purpose of this research is to provide the first of its kind, a concrete study of neuroplasticity and re-wiring in the presence of radiation therapy. To our knowledge, no prior study has been conducted on this topic. This study will provide data that may help explain the overall physiological process of neuron electrical output, connectivity, communication, wiring and spike levels. As of the moment, we are yet to publish a conclusive result of our experiments due to its ongoing data collection.

O31 – Matthew Floyd (Kokomo)

“Reusing and Understanding Software Libraries Using Semantic Techniques and Ontology Formalisms”

Current object-oriented libraries are hard to understand and existing systems that facilitate reusing and comprehending these libraries require a repository of relevant source code examples in order to be more accurate. However, such code examples that are well documented and informative are hard to be found. The vast amount of useful open-source code lacks informative API documentation and design information. Our research takes a three part approach to overcoming this deficiency by helping developers with software understanding and by making reuse of these complex software libraries more efficient and more accurate. First, we automatically capture design patterns to help with software understanding. The system implements rule-based detection of design patterns which provide reusable solutions to common design problems. Second, the system implements the automatic retrieval of software components. Finally, the system implements a source-code recommendation which automatically constructs and delivers relevant code examples that demonstrate how the retrieved components can be used to solve particular programming problems. Our methodology for achieving this three-fold system utilizes semantic-based tools and technologies from the emerging field of Semantic Web. These techniques enable us to create an explicit ontological representation of code knowledge. This ontological modeling and semantic-based representation of the conceptual source-code knowledge are the basis for computing entailments and enabling semantic reasoning. Our preliminary experimental efforts show evidence that combining ontology formalisms with context-sensitive techniques enhance precision when retrieving and recommending reusable code and help programmers better understand software libraries from the captured design patterns.

O32 – Jacqueline Hill (IUPUI)

“Using Self-Determination Theory to Identify Gamification and Motivational Affordances in Serious Games”

The adoption of serious games in many genres is still in its infancy. Research has started to emerge that demonstrates how serious games can be an effective way to educate, engage, and motivate. One genre that has been the subject of research in serious games is health education. Gamification and serious games are related because both try to leverage aspects of games to achieve something beyond playfulness. Serious games offer an enjoyable way to solve real-world problems. In health education they provide a greater chance of success if they offer the player an opportunity to practice what they have learned. To provide an impetus that guides serious game research self-determination theory was identified as an underlying principle from which serious games and game play and can be discussed. Evidence is provided to answer the following question; which gamification and motivational affordances are most prevalent in health education serious games? For this study a revised instrument was developed: The Serious Game Design Protocol. It was administered to a sample of 21 students in a higher education serious games course. Students reviewed two serious games on the topic of diabetes. The authors acknowledge the existence of several games on the topic of diabetes but chose to review the following based on availability for this study. Results from the study revealed several limitations in serious games such as the lack of autonomy. The purpose is to educate the player about and guide them to specific learning goals. Effective serious game design should be an overarching goal to ensure a player’s motivational needs.

O33 – David Phaire (Southeast)

“Data Mining and Modeling of The Crime Statistics For The City Of Louisville Using Tableau”

The collection and processing of “big data” from everywhere has increasingly become more important and of interest to police and citizens of Louisville, KY. This project examines the effects of policing and crime frequencies based on population demographics of the City of Louisville. The empirical results are based on the data drawn from the U.S. Census Bureau and Louisville Metro Police Crime Statistics database. This study looks at if increased policing reduces crimes in affluent areas versus less affluent areas of the city and if there is a correlation between education levels of citizens and the police officers. We use Excel and Tableau as the analytical tools to verify our hypothesis and visualize data.

Oral Session H

1:20pm – 2:20pm

O34 – Mosopefoluwa Ladapo (IUPUI)

"The Effect of Music on Body Sway When Standing in a Moving Virtual Environment"

Movement of the visual surrounding using virtual reality (VR) is an established tool for testing body sway for clinical and research purposes. There are, however, no conclusive studies showing the effects music can have on balance especially if it is heard in conjunction with a shifting visual surrounding. For this study subjects stood quietly with their eyes closed, with their eyes open, and with their eyes open as they viewed a VR environment translating forward and backward at 0.1 Hz. In addition to these visual conditions, they simultaneously experienced "no sound" and music conditions. The music conditions consisted of their hearing a section of Mozart's Jupiter and a section of the subject's self-selected popular music play normally and also modified so that the loudness and frequency shifted in sync with the VR movement. Body sway was assessed through analysis of center of pressure movement (COP) recorded with force plate, a commonly used device for assessing balance. To date, we have analyzed the body sway of one subject and have found that, for that subject, addition music enhanced the effect of the translating scene on body sway as measured by increased COP variability, velocity, and a shift in median COP frequency. For this subject, however, it did not appear neither to make a difference whether the subject heard Mozart's Jupiter or listened to their own self-selected music nor whether the music's frequency or loudness was synced to the movement of the scene. Should these findings hold with further body sway analysis of more subjects, they would be of interest to clinicians and researchers examining the impact of sound on balance as well as to video game and computer graphics designers looking to create more immersive VR environments.

O35 – Timothy Huber (Northwest)

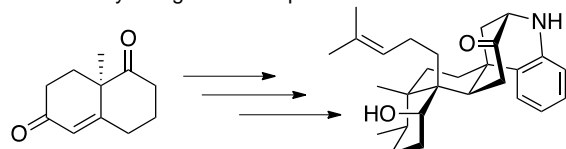
"Supersymmetric Quantum Mechanics and Potentials With the Oscillator Spectrum"

The Harmonic Oscillator is a quantum mechanical system that represents the most basic potential. In order to understand the behavior of a particle within this system, the time independent Schrodinger equation must be solved; in other words, the eigenfunctions and eigenvalues must be found. The purpose of this study is to construct a family of single parameter potentials and corresponding eigenfunctions with a spectrum similar to that of the Harmonic Oscillator. This task can be achieved via supersymmetric quantum mechanics, which utilizes an intertwining operator that relates a known Hamiltonian with another whose potential is to be built. With these developed principles and methods, one can then generalize the technique to work with the time dependent Schrodinger equation.

O36 – Joselito Miranda (Northwest)

"Progress toward the total synthesis of Aspernomine"

A twelve step synthetic approach to aspernomine is being conducted, starting from enantiopure Wieland-Miescher ketone. Aspernomine is a tetrahydroquinoline alkaloid isolated from the fungus *Aspergillus nomius*, it is a cytotoxic antiinsectan and exhibits activity towards three human tumor cell lines.¹ The key steps involved are stereoselective cuprate addition rendering a set quaternary carbon and a cascading aza-Prins, Freidel-Crafts, and a Grobe fragmentation. Synthetic engineering and regioselective methenylation are currently being studied to provide the scaffold for the cuprate addition.



O37 – Evin Magner (Southeast)

"Investigating the Possible Carnivorous Nature of Seaweed"

This report discusses the research designed to look for carnivorous species of seaweed. This discovery would help elucidate their ecology, possibly explaining their abundance in nutrient-deficient environments or altering our understanding of their role in the food web. Compared to terrestrial carnivorous plants, seaweed has had more time to evolve, been exposed to the similar selective pressures, has more potential prey options, and can assemble the same structures and chemicals. Using peer-reviewed articles, online databases, and literature, including photographs, certain species of seaweed were highlighted for further investigation. Field observations of seaweed, in addition to the literature research, of were conducted in Canada, the United Kingdom, and the United States. Culminating the findings of these two research approaches, a few species were chosen for laboratory studies. These potential candidates exhibited structures that aided in turbulence reduction for effective prey trapping and were native to nutrient poor waters. Current on-going research is now investigating the carnivorous potential of three species of seaweed: *Polysiphonia denudate*, *Fucus vesiculosus*, and *Zonaria flabellate*. Using radiolabeling, we intend to measure the absorption of materials and nutrients in the "traps" of these seaweed. If these seaweeds are indeed using "traps" then we should expect to see some level of absorption at these sites. Therefore, demonstrating the ability of seaweed to absorb nutrients from captured prey. Future studies hope to explore the mechanisms of capture and secondary metabolites that may contribute to the carnivorous nature, such as alginic acid and phlorotannins.

O38 – Chiamara Anokwute (Northwest)

"Identification of regulatory sequence for the membrane-bound transcription factor SAUSA300_2640"

Staphylococcus aureus is an important human pathogen, causing a wide range of diseases from minor skin infections to life-threatening blood infection, endocarditis, and toxic shock syndrome. Recently we identified the gene SAUSA300_2640 (hereafter 2640) encoding a membrane-bound transcription factor. Transcription factors are proteins regulating transcription of target genes by directly binding to DNA. The 2640 gene has a 259 nt-long upstream region that is suspected to contain both promoter and 2640 binding sequences. In this study, we determined the binding sequence of 2640 in the upstream region. In a random mutagenesis study, we identified two regions critical for transcription of 2640. We hypothesized that the first region (-41 nt ~ -69 nt) contains the promoter sequence whereas the second region (-79 nt ~ -97 nt) has the binding sequence for 2640, because the second region has an inverse repeat sequence (TGTCAAANNNTTGTAGTCA). When we mutated the inverse repeat sequence, except for the mutation at the -82 position, all mutations either abolished or greatly reduced the transcription of 2640. Based on the results, we concluded that the inverse repeat sequence is probably the binding sequence of 2640.



INDIANA UNIVERSITY

ORAL ABSTRACTS I-K

2:30pm – 3:30pm

Oral Session I

2:30pm – 3:30pm

O39 – Emily Pedigo (IUPUC)

*“A Sociological Examination of Suicide in *The Bell Jar*”*

The sociological imagination and sociology theories further enhance the study of suicide in the novel *The Bell Jar*. A multidisciplinary approach to literature brings a greater understanding of society and the literature. *The Bell Jar* can be examined through a sociological perspective to provide more insight and a better understanding of the literature. The sociology of literature can be useful in understanding society. Literature is a reflection of society, and so it is a great way to study society. Because *The Bell Jar* is based roughly on Sylvia Plath's life, it can also be helpful in the study of her life as well. This project involved rereading *The Bell Jar* and applying sociological theories to the novel. Social comparison theory, anomie, conflict theory, and the dramaturgy theory have provided new points of view in *The Bell Jar*. For instance, social comparison is a factor in Esther's depression. She never believes she fits in with her peers, and we know that social connections are believed to decrease the risk of depression. Unfortunately, Esther is further isolated because of her social class; her peers are mainly wealthy, and she is on a scholarship. This project is the very first of its kind; no one has used sociological theory to examine this novel.

O40 – Alexandria Hepburn (South Bend)

“Attitudes Towards Feminism”

The purpose of this research is to investigate men and women's attitudes towards feminism. More specifically, this research looks at why people tend to agree or even practice feminist related ideologies but show a reluctance to self-identify as a feminist. Previous research has shown that there are inconsistencies between men and women identifying as feminists, depending on the presence or absence of a definition for feminism. This research will be presented as a qualitative and quantitative survey administered to: introductory psychology students, willing participants recruited via social media as well as the students, staff, and faculty of IU South Bend. The survey consists of the Liberal Feminist Attitude and Ideology Scale and open-ended questions about attitudes towards feminism and feminists. This research hopes to find why men and women currently continue to show reluctance to identify as feminists. Data collection is currently underway. It is hypothesized that there will be inconsistencies between self-identification of feminism and attitudes towards feminism.

O41 – Deanna Kaparo (Southeast)

“Effects of Feedback on Perceived Performance, Affect, and Perseverance”

The field of praise research has been plagued with equivocal results, yet many studies suggest praise may be an avenue for profound interventions. One area of confusion includes how detrimental different types of praise can be when applied over short periods of time. We answer this question by exposing university students to different types of praise for successful and failure scenarios, over a short time to determine what, if any, effects the praise has on mindset in the form of perceived performance, affect, and perseverance. If our results are significant, they suggest that training professors to understand praise and utilize it appropriately could make academic success more prevalent among students.

O42 – Joseph Simon (Southeast)

“Heroes Coming Home: A Veteran Oral History Project”

Each day, a veteran wakes up in the bed where a military service member had gone to sleep the night before; however, a veteran does not return as the civilian person they once were before they joined the military. Each and every veteran must learn to navigate a new world completely different than their military world. This process of adjusting back into civilian life is called the acclimation process. This acclimation process is difficult; however, the difficulty of the acclimation process has not been collected and studied utilizing oral history methods. This lack of utilizing oral history methodology contributes to 22 veterans committing suicide every day. This epidemic strikes down veterans regardless of income level, societal class, ethnicity, age, gender, sexual orientation, or combat status. My oral history project collects the struggles and successes of veterans by asking direct questions about their acclimation experience and documenting their experiences in their own words. The results of my project challenge the assumptions about the veteran acclimation experience in relation to their civilian expectations. These conclusions confirm what we already know, that we need to change the attitude and expectations of service members as they transition to veteran status. However, what makes this revolutionary is the correlation that the confidence they have in rejoining civilian life is based on the misconception that they will have the support structure that makes this confident outlook possible. Understanding this seemingly paradoxical thinking is quintessential to our fight to end veteran suicide.

O43 – Tamara Franks (Southeast)

“Maintaining goals throughout a lifespan can create self-efficacy, well-being and life satisfaction.”

Earlier researchers found having a life goal relates to subjective well-being. Subjective Well-Being is defined as a person's cognitive and affective outlook of their life. The purpose of this research is to study Subjective Well-Being goals (SWB) and understand why the goals are important in a person's lifespan for their self-efficacy, well-being, and life satisfaction. The research focuses on the human variables: self-esteem, confidence, happiness, and life satisfaction in reaching a goal. It is hypothesized that individuals who are happier and confident have greater life satisfaction than someone with lower self-esteem. The findings in this study will show that Subjective Well-Being goals are important to an individual's self-efficacy, well-being, and satisfaction with life throughout adulthood.

Oral Session J

2:30pm – 3:30pm

O44 – Shane Baker (Southeast)

“Guerrilla Campaigns and Their Influence on the Population at Home and Abroad”

Since the beginning of organized civilization, there have always been those that have shrugged and scoffed at the established order. Those that, in the deepest recesses of their hearts, felt that those in charge are not what was best for the entirety of the population. So they fought back, and the effects of their guerrilla campaigns would be immediately felt in the population at home. But what about pockets of their population that live in different countries, such as Irish immigrants in the United States during the Irish War for Independence in 1920? Did they feel a sense of solidarity with their countryman at home? Or were they so far removed that the guerrilla campaign might as well not have happened at all? This paper compares various guerrilla campaigns throughout the Atlantic, from Europe to South America, and the effects that they had on the population, both foreign and domestic.

O45 – Sarah Knoy (Southeast)

“The relationship between mothers’ and fathers’ separation anxiety”

The purpose of this study was to examine the relationship between mother's and father's anxiety about separation from their children. Previous research has found that mother's attitudes about separation were related to the father's attitudes about separation. Mothers with a high level of anxiety tended to have partners with high anxiety. The current study included 67 families who participated in home visits when the child was 6 months, 18 months, and 15 years old. At 6 and 18 months, the mothers and fathers completed the Maternal Separation Anxiety Scale. At 15 years, the mothers and fathers completed the Parents of Adolescents Separation Anxiety Scale. During infancy, mothers' and fathers' separation anxiety was not correlated. However, mothers' and fathers' separation anxiety is positively correlated in adolescence. The significance of these results is discussed.

O46 – Cassidy Clouse (East)

“Motivating Self-Referenced Approach and Avoidance Movements with Emotional Images”

The movements of pushing away and pulling towards oneself are important approach and avoidance behaviors. Previous research has demonstrated that reaction times are faster when pulling in response to positive emotional stimuli and when pushing away in response to negative emotional stimuli. However, the forces applied during self-referenced pushing and pulling have not been investigated. Here we measured the sustained forces of pushing and pulling while eliciting emotions with images. We designed and built an apparatus with an attached force load sensor that could be oriented for either pulling or pushing movements and measure both the forces applied and reaction times in each direction. Fifty participants sat in a chair facing a computer screen and made 18 pushing and 18 pulling movements on the force plate while viewing images from the International Affective Pictures System (IAPS). The emotional images presented varied in terms of arousal (calming or exciting) and valence (unpleasant or pleasant). We found that negative images rated as arousing and unpleasant had the greatest effect on movement force magnitude ($p = .010$, $d = 0.27$) when compared to neutral conditions. High arousal images elicited greater movement force than low arousal images ($p = .023$, $d = 0.14$) regardless of the orientation of movement (pushing or pulling). Our results show that unlike reaction times, the forces applied during pushing and pulling are only influenced by the arousal and valence of the emotion and not the orientation of the movement.

O47 – Nicole Griffin (Southeast)

“Patients’ Satisfaction with Treatment for Symptoms Related to Depression and Anxiety: A Comparison of Provider Types”

This study focuses on patient satisfaction by provider type for mental health concerns, specifically symptoms associated with anxiety or depression. Since many who seek treatment for these symptoms consult their primary care doctors rather than a mental health care specialist, understanding how care satisfaction differs between provider types may help improve mental health care in the most accessible settings. A modified MISS-21 survey was distributed through the IUS Subject Pool and the social media platform Reddit. The MISS-21 was designed to assess patient satisfaction with healthcare providers. Participants were eligible for participation if they were between the ages of 18-25 and had sought treatment for the symptoms of anxiety or depression in the last 12 months. Results will be analyzed using statistical methods to observe the difference in reported satisfaction between primary care doctors, psychologists, and psychiatrists.

O48 – Hadya Sow (IUPUI)

“Creating and Maintaining an Indiana “Lead & Healthy Homes” Student Health Corps: Assessing Best Practices, Addressing Barriers, and Advancing Professional Student Involvement in Childhood Lead Prevention”

The Indiana Lead and Healthy Homes Program (LHHP) is a branch of the Marion County Health Department that works to eliminate childhood lead poisoning by screening, monitoring, and treating children with lead poisoning in the community. Unfortunately, the department is short staffed. While there are active employees dedicated to the cause, it would be helpful to have other hands going out into the community, collecting home assessments, and maintaining records within the department database. The residual work could be completed by student volunteers; however, an organized effort specifically for the LHHP does not currently exist. This paper explores the possibility of establishing a program to help secure volunteers for the Indiana Lead and Healthy Homes Program. It aims to understand which groups of students would be best for such a program, how to encourage participation, and what obstacles, if any, could be removed in order to facilitate student involvement.

Oral Session K 2:30pm – 3:30pm

O49 – Rachel Layman (Southeast)

“Grammar Workshop Implementation”

A plethora of students, particularly freshmen, often visit The Writing Center to address their need of grammar comprehension. Writing is a crucial part of academic careers, and writing is governed by grammar. If students remain unaware of grammar rules, their chance of academic success will decrease. Our research, consisting of surveys, interviews with consultants, and the input of university faculty has pinpointed the grammar needs of students. In order to address this need, we plan to introduce a grammar workshop provided to students by The Writing Center. This workshop will address common grammar errors as well as provide students with outside resources for grammar help so they can access to the information while working on assignments. Errors most common among students were misuse of commas, spelling errors, and punctuation as a whole. According to our research, roughly half of students surveyed stated they would attend such a workshop. It is our goal through this project to create a practical and reusable outline that can be utilized by any number of people and entities to aid grammar comprehension. In addition to helping students, we hope to alleviate student requests for proofreading when students come to The Writing Center. It is our intent to present this outline at conference.

O50 – Matthew Moore (Southeast)

“Witchcraft in Puritan Salem and its European Origin”

The transfer of European religious beliefs and superstition to seventeenth century New England compelled citizens of the Massachusetts Bay Colony to sentence several people to death for witchcraft in 1692. Examining church and judicial records, as well as first-hand accounts, from colonial New England reveals how European religious and legal practices shaped conceptions of witchcraft among Puritans in Salem Village. The legal and religious context in which Puritanism developed in Europe and social conditions in New England shaped the unearthly perception of witchcraft in seventeenth century Salem Village. An awareness of witchcraft can be traced back to the beginning of the medieval era in Europe. Conceptions of witchcraft diffused into New England from Europe and exposed by the religious institution in place within Salem Village fundamentally influenced the proceedings of the infamous witch trials. Examining the transfer of European religious beliefs and conceptions of witchcraft across the Atlantic reveals the extent to which these traditions were adapted to colonial life as well as how they influenced the witchcraft trials in seventeenth century New England. This research reveals the ways in which societies are shaped by global ideologies.

O51 – Erika Lopez (IUPUI)

“Complications and Stoma Care Self-Efficacy are Associated with Ostomy Adjustment in People with an Intestinal or Urinary Ostomy”

More than 120,000 new ostomies, or surgically created openings through the abdomen for bowel or urinary elimination, are created annually in North America. Up to 80% of patients with a new ostomy experience ostomy-related complications that can interfere with adjustment to living with an ostomy and diminish quality of life. The purpose of this study was to examine relationships among ostomy complications, stoma care self-efficacy, and ostomy adjustment in people living with an intestinal or urinary ostomy. Data were collected from 202 participants by trained telephone interviewers. Eligible participants: 18 years of age or older, had ostomy surgery within the past 24 months, currently have an ostomy, and were able to speak English. The Ostomy Adjustment Inventory-23 assessed adjustment to living with an ostomy and the Stoma Self-Efficacy Scale measured confidence in caring for an ostomy. Univariate analyses were conducted using t-tests, ANOVA, and correlations using the Statistical Package for the Social Sciences. Higher ostomy adjustment scores were observed in participants with permanent versus temporary ostomies ($p=.002$). Compared to those who did not experience ostomy complications, participants who developed peristomal dermatitis ($p=.005$), parastomal hypergranulation ($p=.003$), stomal bleeding ($p=.004$), and stomal retraction ($p=.015$) had lower ostomy adjustment scores. Stoma care self-efficacy scores were significantly correlated with ostomy adjustment scores ($r=0.534$, $p=.000$). Additional support and education to reduce complications and enhance stoma care self-efficacy are needed for people at risk for poor adjustment. Future research is needed to develop and test the effectiveness of interventions to enhance self-efficacy and ostomy adjustment.

O52 – Joseph Rodriguez (IUPUI)

“Sox2 and Folic Acid Effects in a Zebrafish Fetal Alcohol Spectrum Disorder Model”

Alcohol exposure during fetal development has many adverse effects on embryonic cells, known as fetal alcohol spectrum disorder (FASD). Zebrafish are an excellent model to study FASD, due to their similar developmental pathways to humans. Previous studies show that ethanol exposure produces numerous cellular defects similar to those seen in human FASD patients. This research aims to understand the gene expression changes that occur in early development during exposure to ethanol and the mechanisms behind the rescuing effects of folic acid (FA) and sox2 treatments. Zebrafish embryos were analyzed at developmental stages from 3-8 hours post-fertilization (hpf) in five treatment groups [control; ethanol treated; ethanol +sox2 injected; ethanol+FA treated; and ethanol+sox2 injected+FA treated]. Total RNA was isolated from embryos from each treatment group. The purified RNA is then reverse transcribed into cDNA. Quantitative PCR was then used to analyze the cDNA using gene specific primers to determine relative expression levels of various genes present in the early stage developmental pathway. Specific developmental protein pathways were examined, including, wnt, notch, and elf3 gene targets. This research will provide insight into ethanol induced gene expression changes during early stage development in specific cell types. Our goal is to understand the genesis of FASD-like birth defects caused by ethanol exposure, and to understand rescue FA and sox2 treatments. This research may help identify ethanol targets and therapeutic strategies to prevent or reverse the alcohol induced damage.

O53 – Brianna Dittmer (Northwest)

“The Loss of Innocence in Le Bateau Ivre”

This literary analysis of *Le Bateau Ivre* by Arthur Rimbaud delves into the metaphorical evolution of the poet. From innocent childhood to thrusting himself into the world with the liberty of adulthood, Rimbaud uses the analysis of a boat departing from the safety of the harbor on a voyage into the vast unknown. However, this voyage turns sour as raging tempests and the terrifying beauty of nature ravages the boat. The boat returns to the confines of the harbor, shaken but resigned. This comparison parallels Rimbaud himself; he detests the structure of literary circles and seeks to revolutionize the rules of poetry. However, in uncharted waters he finds great beauty and views the world with childlike curiosity. In this poem, Rimbaud finds himself questioning his ability to change the way in which society views literature as reality crushes his dreamlike fantasy.